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# Statewide survey of boat-based recreational fishing in Western Australia 2017/18

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# Executive Summary

The statewide survey of boat-based recreational fishing includes three components: (i) off-site Phone Surveys (encompassing an initial Screening Survey, a longitudinal Phone-Diary Survey, and Post-Enumeration Surveys); (ii) on-site Boat Ramp Surveys; and (iii) Remote Camera Surveys. The main data collection period was the 12-months from September 2017 to August 2018 inclusive, with the Post-Enumeration Surveys occurring from September to December 2018. This report presents results from the statewide survey in 2017/18 and provides comparisons with the previous statewide surveys in 2015/16 (September 2015 to August 2016), 2013/14 (May 2013 to April 2014) and 2011/12 (March 2011 to February 2012).

A total of 2,989 fishers completed the Phone-Diary Survey with 92,449 individual fish (including invertebrates) caught (kept or released) during the 12-month survey by those fishers who participated in the survey. Fishing activity reported by fishers during the survey included 13,423 boat days, 14,234 fishing events and 39,285 fishing hours, across every day of the survey year and the majority of the State's coastline. Additionally, 2,773 fishers were interviewed in Boat Ramp Surveys with 7,352 individual fish (or invertebrates) measured.

A diverse range of species/taxa were caught, including scalefish (186 species/taxa), elasmobranchs (18), crustaceans (7) and molluscs (5). An estimated 2.82 million individual fish (including invertebrates) were caught from boat-based recreational fishing in 2017/18. A similar proportion of the catch was either kept (1.52 million or 54%) or released (1.30 million or 46%). Approximately half of the total catch were finfish (1.32 million scalefish or elasmobranchs; 47%) in comparison to invertebrates (1.50 million crustaeans or molluscs; 53%). A similar proportion of finfish (49%) and invertebrates (44%) were released.

School Whiting (*Sillago bassensis, S. vittata* and *S. schomburgkii*) were the most commonly caught finfish species statewide with an estimated 259,359 kept or released statewide by number, or 19% of the finfish catch, followed by Australian Herring (*Arripis georgianus*; 119,545 or 9%), Pink Snapper (*Chrysophrys auratus*; 116,091 or 9%), West Australian Dhufish (*Glaucosoma hebraicum*; 67,842 or 5%), King George Whiting (*Sillaginodes punctata*; 52,649 or 4%), Silver Trevally (*Pseudocaranx* spp. complex; 45,913 or 3%), Grass Emperor (*Lethrinus laticaudis*; 36,996 or 3%), Western King Wrasse (*Coris auricularis*; 35,413 or 3%), Black Bream (*Acanthopagrus butcheri*; 31,599 or 2%), Brownspotted Wrasse (*Notolabrus parilus*; 26,084 or 2%), Baldchin Groper (*Choerodon rubescens*; 25,669 or 2%) and Breaksea Cod (*Epinephelides armatus;* 25,471 or 2%). High release rates were observed for many of these species, including Brownspotted Wrasse (85%), Western King Wrasse (85%), Black Bream (80%), Pink Snapper (73%), Grass Emperor (63%) and West Australian Dhufish (59%). Release rates were lower for Silver Trevally (44%), Breaksea Cod (38%), Baldchin Groper (35%), School Whiting (24%), Australian Herring (21%) and King George Whiting (20%).

Western Rock Lobster (*Panulirus cygnus*) and Blue Swimmer Crab (*Portunus armatus*) were the most commonly caught invertebrate species by boat-based recreational fishers. Western Rock Lobster was the most commonly caught (695,433 kept or released statewide by number, or 47% of the invertebrate catch), followed by Blue Swimmer Crab (666,526 or 45%) and Squid (Order Teuthoidea; 88,519 or 6%). High release rates were observed for Blue Swimmer

Crab (58%) compared with Western Rock Lobster (35%) and Squid (3%). These estimates exclude catches from boat-based recreational fishers that only held a Rock Lobster licence and shore-based recreational fishers.

Estimates of catch (by number) were converted to estimates of harvest (by weight) using average weight information collected for key species, obtained from Boat Ramp Surveys or Tour Operator Returns (Charter Logbooks). An overview of the information required for stock status reporting of major recreational fisheries, based on estimates of harvest and 95% confidence intervals during 2017/18, is provided in this report. At a statewide level, estimates of catch from boat-based recreational fishing were generally consistent across the four statewide surveys. At a bioregion level, comparisons can be made for both the species contributing to the top 10 species in each resource and the estimated harvest for each resource.

The top 10 nearshore and estuarine species (or species groupings) in 2017/18 represented: 87% of the total catch (kept by numbers) in the North Coast, 94% in the Gascoyne Coast, 95% in the West Coast and 95% in the South Coast. The estimated recreational harvest ranges for the top 10 nearshore and estuarine species: in the North Coast were steady at 20 t (95% CI 15–26 t) in 2017/18 compared with 21 t (95% CI 15–28) in 2015/16, 14 t (95% CI 10–18) in 2013/14 and 19 t (95% CI 13–25) in 2011/12; in the Gascoyne Coast were steady at 11 t (95% CI 7–15 t) in 2017/18 compared with 6 t (95% CI 4–9) in 2015/16, 14 t (95% CI 8–20) in 2013/14 and 11 t (95% CI 8–14) in 2011/12; in the West Coast were steady at 56 t (95% CI 49–64 t) in 2017/18 compared with 65 t (95% CI 57–73) in 2015/16, but lower than 76 t (95% CI 67–85) in 2013/14 and 114 t (95% CI 101–126) in 2011/12; and in the South Coast were steady at 26 t (95% CI 17–35 t) in 2017/18 compared with 17 t (95% CI 13–21) in 2015/16, 25 t (95% CI 20–30) in 2013/14, but lower than 44 t (95% CI 37–52) in 2011/12.

The top 10 demersal species (or species groupings, 15 in the West Coast) in 2017/18 represented: 79% of the total catch (kept by numbers) in the North Coast, 81% in the Gascoyne Coast, 90% in the West Coast and 99% in the South Coast.

The estimated recreational harvest range for the top 10 demersal species (or groupings) in the North Coast was higher at 75 t (95% CI 63–88 t) in 2017/18 compared with 40 t (95% CI 34–46 t) in 2015/16, but steady with 55 t (95% CI 46–65) in 2013/14 and 78 t (95% CI 69–87) in 2011/12. This decrease was consistent with steady estimates of effort by boat-based recreational fishers in the North Coast in 2017/18 compared with 2015/16. Estimated recreational harvests in 2017/18 were higher for: Coral Trout (9–16 95% CI) compared with 2015/16 (4–7), but steady with 2013/14 (5–10) and 2011/12 (8–15); Rankin Cod (8–22) compared with 2015/16 (3–7), but steady with 2013/14 (4–9) and 2011/12 (6–10); and Red Emperor (9–21) compared with 2015/16 (3–9), but steady with 2013/14 (4–10) and 2011/12 (7–12). Estimated recreational harvests were steady for Grass Emperor, Blackspot Tuskfish, Blue Tuskfish, Spangled Emperor, Stripey Snapper and Mangrove Jack.

The estimated recreational harvest range for the top 10 demersal species (or groupings) in the Gascoyne Coast were steady at 96 t (95% CI 82–110) in 2017/18 compared with 99 t (95% CI 85–114) in 2015/16, 98 t (95% CI 85–111) in 2013/14, but lower 144 t (95% CI 125–160) in 2011/12. Estimated recreational harvests were steady for Pink Snapper, Spangled Emperor,

Goldband Snapper, Rankin Cod, Red Emperor, Grass Emperor, Redthroat Emperor, Coral Trout, Baldchin Groper and Stripey Snapper in the Gascoyne Coast.

The estimated recreational harvest range for the top 15 demersal species (or groupings) in the West Coast were steady at 231 t (95% CI 210–253) in 2017/18 compared with 213 t (95% CI 194–231) in 2015/16, but higher than 154 t (95% CI 140–168) in 2013/14 and 160 t (95% CI 145–174) in 2011/12. The estimated recreational harvest range of West Australian Dhufish was steady in 2017/18 (105–141) compared with 2015/16 (97–129), and higher than 2013/14 (69–94) and 2011/12 (64–87). The estimated recreational harvest range of Baldchin Groper was steady in 2017/18 (26–38) compared with 2015/16 (28–42), and higher than 2013/14 (17–25) and 2011/12 (24–36). The estimated recreational harvest range of Pink Snapper was steady in 2017/18 (40–55) compared with 2015/16 (30–42), and higher than 2013/14 (25–36) and 2011/12 (27–38). Estimated recreational harvests were also steady for Breaksea Cod, Emperor, Bass Groper, Blue Morwong, Hapuku, Bight Redfish, Sergeant Baker, Blue-Eye Trevalla, Foxfish, Eightbar Grouper and Sea Sweep in the West Coast.

The estimated recreational harvest range for the top 10 demersal species (or groupings) in the South Coast were higher at 68 t (95% CI 59–77) in 2017/18 compared with 45 t (95% CI 38–51) in 2015/16, 33 t (95% CI 30–37) in 2013/14 and 54 t (95% CI 46–63) in 2011/12. Estimated recreational harvests in 2017/18 were higher for West Australian Dhufish (9–17 95% CI) compared with 2015/16 (3–8), 2013/14 (1–4) and 2011/12 (1–8). Estimated recreational harvests were steady for Bight Redfish, Pink Snapper, Blue Morwong, Breaksea Cod, Sea Sweep, Harlequin Fish, Swallowtail and Sergeant Baker in the South Coast.

The statewide top 10 pelagic scalefish species (or species groupings) in 2017/18 represented 85% of the total resource catch (kept by numbers). The estimated recreational harvest range for the top 10 pelagic species was steady at 104 t (95% CI 87–121 t) in 2017/18 compared with 106 t (95% CI 93–118 t) in 2015/16, but lower than 143 t (95% CI 124–163) in 2013/14 and 174 t (95% CI 154–193) in 2011/12. The estimated recreational harvest range of Spanish Mackeral was steady in 2017/18 (37–58) compared with 2015/16 (35–54), and lower than 2013/14 (69–103) and 2011/12 (78–108). The estimated recreational harvest range of Samsonfish was steady in 2017/18 (10–17) compared with 2015/16 (11–19), 2013/14 (16–28) and 2011/12 (14–22).

Estimated recreational harvest ranges of crab resources in each bioregion were also compared with previous statewide surveys. The estimated recreational harvest of Mud Crab in the North Coast represented 92% of the statewide total catch (kept by numbers) in 2017/18. The estimated recreational harvest range of Mud Crab in the North Coast was steady at 2.5 t (95% CI 2–3) in 2017/18 compared with 2.5 t (95% CI 2–3) in 2015/16, but lower than 6.5 t (95% CI 5–8) in 2013/14 and 7 t (95% CI 5–9) in 2011/12.

The estimated recreational harvest of Blue Swimmer Crab in the West Coast represented 90 % of the statewide total catch (kept by numbers) in 2017/18. The estimated recreational harvest range for Blue Swimmer Crab in the West Coast was steady at 54 t (95% CI 45–63) in 2017/18 compared with 43 t (95% CI 36–50) in 2015/16 and 59 t (95% CI 50–68) in 2013/14, but lower than 87 t (95% CI 76–98) in 2011/12. The estimated recreational harvest ranges for Blue Swimmer Crab were steady in 2017/18 in the: North Coast (1–3 95% CI compared with 1–3 in

2015/16, 2–6 in 2013/14 and 2–5 in 2011/12); Gascoyne Coast (1–10 compared with 1–2 in 2015/16, 1–4 in 2013/14 and 1–8 in 2011/12); and South Coast (0–0.14 compared with 0.2–1.2 in 2015/16, 1–3 in 2013/14 and 1–4 in 2011/12).

There have been significant changes in recreational fishing rules since the previous statewide surveys, including closure of the recreational fishery for southern garfish in Perth Metropolitan waters (31–33 degrees south) and the removal of closed season for Rock Lobster (where the season previously extended from 15 October each year until 30 June the following year). Additionally, management reviews have been conducted for the West Coast Demersal Scalefish Resource, Gascoyne Demersal Scalefish Resource (Pink Snapper) and south-west Blue Swimmer Crab Resource. Results from the statewide surveys will contribute to outcomes from these management reviews.

Data collected from the integrated statewide surveys are extensive, and while this report summarises key findings, further analyses and refinement of analysis methods will continue. Additional reports will compare estimates of effort and catch from the statewide surveys with previous surveys, as required for management purposes, and investigate the survey design and sample weighting in greater detail to identify any improvements that can be made.

While this report compares estimates from four statewide surveys of boat-based recreational fishing, additional catches from charter-boat recreational fishing (reported in Tour Operator Returns) and shore-based fishing (where available) are used to determine the total catch from the recreational sector. Specific performance indicators, reference levels and catch tolerances will be reported separately, and used to provide trends in total catch to assist in developing, monitoring and refining management arrangements.

# 1 Introduction

## 1.1 Importance of Recreational Fishing in Western Australia

Recreational fishing is a popular activity in Western Australia, providing important social and economic benefits to the State's population. The estimated number of recreational fishers increased from 315,000 in 1989/90 (Lindner and McLeod 1991) to 612,000 (95% CI 535,000–690,000) in 2017/18 (DPIRD 2018) and 619,000 (95% CI 542,000–696,000) in 2018/19 (DPIRD 2018). The participation rate of Western Australian residents is generally above the national average, with an estimated 26.6% of the population (aged 15 years or older) fishing in 1989/90 and 28.5% (aged 5 years or older) fishing in 2000/01 (Lindner and McLeod 1991, Henry and Lyle 2003). The participation rate in recreational fishing was estimated to be 25.4% (95% CI 22.2–28.7%) in 2017/18, and was not statistically different from the participation rate estimates of the last five years (DPIRD 2018). The expenditure attributable to recreational fishing in Western Australia has been estimated at $55–130 million in 1989/90 (Lindner and McLeod 1991), $338 million in 2000/01 (Henry and Lyle 2003) and $2.4 billion in 2015/16 (Lindner and McLeod 2019).

Recreational fishers often have important catch-related motives such as fishing to 'obtain a feed' or 'for fresh seafood'. However, there are also significant social benefits from recreational fishing. Recreational fishers in Western Australia also have non-catch related motives (e.g. 'to relax and unwind', 'to be outdoors', 'for solitude', or 'to be with family and friends') as their primary motive for fishing (Henry and Lyle 2003). While most recreational fishers only catch a relatively small number of fish, collectively the recreational catch can be substantial. In 2000/01, the estimated total catch from boat- and shore-based recreational fishing in Western Australia included over 10.4 million finfish (by number) and 3.8 million invertebrates (by number; including crabs, prawns, lobster, and cephalopods) (Henry and Lyle 2003). The estimated total catch from boat-based recreational fishing was: 2.4 million finfish (by number) and 1.4 million invertebrates in 2011/12 (Ryan *et al.* 2013); 2.0 million finfish and 1.4 million invertebrates in 2013/14 (Ryan *et al.* 2015); and 1.3 million finfish and 1.5 million invertebrates in 2015/16 (Ryan *et al.* 2017). This reports provides an update of the estimated recreational catches from boat-based recreational fishing in 2017/18.

## 1.2 Need for Recreational Fishing Information

Information on recreational fishing effort and catch levels is used to inform stock assessments, resource allocation between fishing sectors, and the development, implementation and review of management plans. Effective management of fish resources requires accurate estimates of the catch taken by all sectors; therefore, a high priority has been placed on the collection of data for key recreational fisheries in Western Australia (Wise and Fletcher 2013, Ryan *et al.* 2016).

Obtaining suitable recreational fishing data in Western Australia is challenging because of the State's large coastline (20,781 km) and ongoing regional development, which is changing the distribution and intensity of recreational fishing activity. In 2017/18, the proportion of days fished (by recall) from the annual Community Survey was highest in the West Coast bioregion (50%),

around the capital city (Perth) and several of the State's large regional centres (Bunbury, Busselton and Geraldton; DPIRD 2018). Recreational fishing effort in marine waters was lower elsewhere, such as in the South Coast (17.9%), Gascoyne Coast (5.6%) and North Coast (17.9%; DPIRD 2018).

Estimating the total recreational catch can be logistically difficult and is often relatively costly. These difficulties are especially apparent where there is no licence available to use as a sampling frame to easily identify recreational fishers. Historically, recreational fishers in Western Australia only required a licence for rock lobster, abalone, marron, freshwater angling and netting. Although the Recreational Boat Fishing Licence (RBFL) was introduced in March 2010, there is still no licence required for shore-based recreational fishing. As a result, there are no contemporary estimates of the total boat- and shore-based catch. Importantly, in 2000/01, 57% of fishing effort and 54% of the recreational harvest was attributable to shore-based recreational fishing (Henry and Lyle 2003). It is likely that shore-based recreational fishing still represents a substantial component of the total recreational effort and harvest.

Recreational fishing licence fees raised $8.5 million in 2017/18 (DPIRD 2018). This revenue is invested in initiatives with direct benefit to recreational fishers in Western Australia, including recreational fishing surveys. These surveys provide harvest estimates and socio-economic information to inform management and policy, including Marine Stewardship Council certification and Integrated Fisheries Management (IFM), to ensure fish resources are managed sustainably and shared between fishing sectors (Department of Fisheries 2010, Ryan *et al.* 2016). To date, explicit resource allocations have been developed for: Western Rock Lobster (5% recreational, 95% commercial); metropolitan Roe's Abalone (40t recreational, 36t commercial); and the West Coast Demersal Scalefish Fishery (36% recreational, 64% commercial). The implementation of the new Fisheries Act will require all new Aquatic Resource Management Strategies to have explicit sectoral allocations (Department of Fisheries 2010).

Long-term monitoring of recreational fishing will provide a greater understanding of temporal variability and trends in effort and catch that are essential for the assessment of stocks, resource allocation and management settings within the broad context of Ecologically Sustainable Development and Ecosystem Based Fisheries Management (Department of Fisheries 2019, Gaughan and Santoro 2019).

## 1.3 Recreational Fishing Surveys in Australia

The spatial resolution of monitoring recreational fishing needs to be matched to the spatial scale at which fisheries are managed. For many jurisdictions, this requires off-site methods that are appropriate for sampling large geographical areas, with numerous access points to the fishery and many recreational fishers (Pollock *et al.* 1994). The sampling frame used to randomly select recreational fishers for an off-site survey can range from a general population list (e.g. White Pages® telephone directories) to specific lists (e.g. licence database). Sampling from the White Pages® requires contacting many non-fishing households to locate fishing households and does not include unlisted (silent or mobile) numbers (Taylor and Ryan 2019). Sampling from licence

databases has a higher probability of contacting fishers and includes fishers with or without a listed telephone; however, effectiveness is determined by exemptions, data availability and non-compliance (Ryan *et al.* 2009, Hartill *et al.* 2012).

The National Recreational and Indigenous Fishing Survey (NRFS) provided statewide estimates of boat- and shore-based recreational fishing across Australia from 1 May 2000 to 30 April 2001 (Henry and Lyle 2003). This survey used telephone interviews of fishers who were randomly selected from White Pages telephone directories. This methodology has been employed in subsequent statewide surveys in: South Australia from 1 November 2007 to 31 October 2008 (Jones 2009) and 1 December 2013 to 30 November 2014 (Giri and Hall 2015); Tasmania from 1 December 2007 to 30 November 2008 (Lyle *et al.* 2009), 1 November 2012 to 31 October 2013 (Lyle *et al.* 2014), and 1 November 2017 to 31 October 2018 (*in prep*); New South Wales from 1 June 2013 to 31 May 2014 (West *et al.* 2015), and 1 October 2017 to 30 September 2018 (*in prep*); Northern Territory from 1 April 2009 to 31 March 2010 (West *et al.* 2012), and 1 October 2017 to 30 September 2018 (*in prep*); and Queensland from 1 October 2010 to 30 September 2011 (Taylor *et al.* 2012) and 1 November 2013 to 31 October 2014 (Webley *et al.* 2015).

The statewide survey currently underway in Queensland has recruited diarists from a Screening Survey of randomly selected landline and mobile phone numbers from a commercial sample provider (SamplePages) (Misson *et al.* 2019). The Phone-Diary Survey from 29 April 2019 to 28 April 2020 will use multi-modal contact methods (https://www.daf.qld.gov.au/business-priorities/fisheries/monitoring-compliance/monitoring-reporting/recreational-fishing/statewide-recreational-fishing-surveys, accesed 7 October 2019).

Licence databases have been used as sampling frames for surveys designed to estimate the total recreational catch for many specialised, low participation, licensed fisheries (e.g. abalone, rock lobster and scallops) in Australia (e.g. Lyle and Tracey 2016, Ryan *et al.* 2009, Ryan *et al.* 2016). The advantages of sampling from a licence database include: reduced costs for the initial screening survey, high response rates (reducing non-response bias), and the ability to use an optimal survey design where avid fishers are oversampled, which can effectively increase the number of fishing events in the sample and improve precision (Ryan *et al.* 2009).

## 1.4 Recreational Fishing Surveys in Western Australia

This report presents results from the statewide survey for the 12-months from September 2017 to August 2018 and provides comparisons with previous statewide surveys conducted from September 2015 to August 2016 (Ryan *et al.* 2017), May 2013 to April 2014 (Ryan *et al.* 2015) and March 2011 to February 2012 (Ryan *et al.* 2013). Prior to these four surveys, large scale surveys of boat-based recreational fishing in Western Australia included the statewide component of the National Recreational and Indigenous Fishing Survey (Henry and Lyle 2003), and Boat Ramp Surveys at a bioregion level. These included 12-month surveys in the West Coast in 1996/97 and 2005/06 (Sumner and Williamson 1999, Sumner *et al.* 2008, Wise and Fletcher 2013); Gascoyne Coast in 1998/99 (Sumner *et al.* 2002, Wise and Fletcher 2013) and 2007/08 (Marriott *et al.* 2012); North Coast in 1999/00 (Williamson *et al.* 2006); and South Coast in 2002/03

(Smallwood and Sumner 2007). The introduction of the Recreational Boat Fishing Licence (RBFL) provided a suitable sampling frame for a comprehensive statewide survey (both spatially and temporally) to estimate catch from boat-based recreational fishing in Western Australia. An integrated system that obtained data from several survey methods, utilising the RBFL as the basis for sampling recreational fishers, was developed to provide the most robust approach for obtaining annual estimates of catch from boat-based recreational fishing at both statewide and bioregion levels (Wise and Fletcher 2013).

## 1.5 Statewide Survey of Boat-Based Recreational Fishing

The statewide survey includes three complementary components: (i) off-site Phone Surveys using the RBFL as a sampling frame, with an initial Screening Survey to recruit respondents for the longitudinal Phone-Diary Survey, followed by Post-Enumeration Surveys to detect differences among licence holders (Wash-Up/Attitudinal, Non-Intending Fisher and Benchmark Surveys); (ii) on-site Boat Ramp Surveys to provide biological information; and (iii) Remote Camera Surveys using digital cameras mounted at key access points to record 24/7 launches and retrievals. The main period of data collection was the 12-months from September 2017 to August 2018, with the Post-Enumeration Surveys occurring from September to December 2018.

## 1.6 Survey Objectives

The overall objectives of this survey were to generate estimates of participation (by number of RBFL holders), effort (boat days and hours fished), and catch for all species (total, kept and released, by number) from boat-based recreational fishing for 12-months at statewide and bioregion levels. These estimates will complement data obtained routinely from the commercial sector. Additional objectives include: estimating recreational fishing effort and reasons for releasing any catch (e.g. size or bag limits, catch and release fishing, or personal preference). Furthermore, the implementation of regular, reliable and cost-effective surveys will provide data that will allow more realistic and rigorous assessments of recreational fisheries.

## 1.7 Report Structure

This report provides statewide and bioregion estimates of effort and catch from boat-based recreational fishing in Western Australia, with complete coverage temporally, spatially and for all recreational fishing methods (including line, pot, net and diving), from September 2017 to August 2018. Where appropriate, comparisons are made with estimates from the previous statewide surveys conducted in 2015/16, 2013/14 and 2011/12.

Each chapter covers specific details or outputs, including:

**Chapter 2 (Survey Design and Analysis)** outlines the survey design and scope for the Phone, Boat Ramp and Remote Camera Surveys. Methods used for the expansion, weighting and analysis of survey data are discussed, along with measures of uncertainty associated with survey estimates.

**Chapter 3 (Participation)** presents estimates of the total number of RBFL holders that fished between September 2016 to August 2017 (Screening Survey) and September 2017 to August 2018

(Benchmark Survey). Participation estimates have been summarised by age, gender, bioregion fished and avidity.

**Chapter 4 (Fishing Effort)** presents estimates of effort from boat-based recreational fishing during the Phone-Diary Survey, including annual effort (boat days and hours fished), statewide and for each bioregion, by habitat, fishing method and month.

**Chapter 5 (Statewide Recreational Catch)** presents estimates of catch from boat-based recreational fishing during the Phone-Diary Survey, including annual catch (total, kept and released, by number), proportions released (release rates) and reasons for release for all species.

**Chapter 6 (Estimates of Catch for Key Species)** summarises estimates of catch from boat-based recreational fishing by bioregion, habitat, fishing method and season for key species, including indicator species within the Resource Assessment Framework.

**Chapter 7 (Bioregion Fisheries)** provides an overview of species composition and estimates of catch from boat-based recreational fishing in each bioregion, including annual catch (total, kept and released, by number) and proportions released for all species.

**Chapter 8 (Small-scale estimates)** provides an overview of species composition and estimates of catch from boat-based recreational fishing for zones within each bioregion, including annual catch (total, kept and released, by number) and proportions released for species where the sample size and relative standard error was considered acceptable (i.e. sample size $\geq 30$ and relative standard error $\leq 40\%$.

**Chapter 9 (Harvest Weights)** provides an overview of the estimated annual boat-based recreational catch (kept, by number), average weight and estimated harvest (by weight) for the most commonly caught demersal and nearshore species/species groupings in each bioregion.

# 2 Survey Design and Analysis

This section outlines the survey design and scope for the Phone, Boat Ramp and Remote Camera Surveys, methods used for weighting and analysis of survey data, and measures of uncertainty associated with survey estimates. Most aspects were consistent with the previous statewide surveys, with any differences discussed below.

## 2.1 Survey Scope

The integrated survey included three complementary components: (i) off-site Phone Surveys (encompassing an initial Screening Survey, a longitudinal Phone-Diary Survey, followed by post-enumeration Wash-Up/Attitudinal, Non-Intending Fisher and Benchmark Surveys); (ii) on-site Boat Ramp Surveys; and (iii) Remote Camera Surveys. Output specifications are listed in Table 1 to identify what was considered in-scope for each survey.

### 2.1.1 Who Was Included In The Survey?

Persons in scope included recreational fishers that held a Recreational Boat Fishing Licence (RBFL), which is required to undertake any general fishing activity from a motorised vessel in Western Australia. Boat-based recreational fishers are required to have a minimum of one RBFL holder on board, and adhere to boat limits according to the number of RBFL holders, and in practice, the number of fishers generally equals the number of RBFL holders on board. In the Phone Surveys, fishers that held their licence in the 12-months prior to each survey component were in scope. An additional criterion for the Phone-Diary Survey was an intention to fish in the next 12-months (either from a boat or the shore). Commercial fishers were considered in scope if they held a RBFL, but any commercial catches by these fishers were not included. Indigenous fishing was not considered to be in the scope of this survey.

Persons in scope were comparable with previous statewide surveys across all survey components, with the expection of an additional sample for the Screening Survey as described here. Consistent with previous Screening Surveys, the sample was randomly selected from the RBFL database. This included any licence holders that concurrently held a Rock Lobster (RL) licence. However, approximately 40% of RL licence holders do not have a RBFL; consequently, previous statewide surveys have underestimated the recreational catch of Western Rock Lobster. For this reason, the Screening Survey in 2017/18 included an additional sample of 600 fishers who only held RL licences, with subsequent recruitment of intending fishers into the Phone-Diary Survey. This sample provided the appropriate data to estimate the recreational catch of Western Rock Lobster by fishers that only held the species-specific licence for Rock Lobster.

Only the results from the RBFL sample are presented in this report to maintain consistency and comparability with estimates from previous statewide surveys. Results from the RL only sample will be reported separately (in comparison with results from mail and phone-recall surveys).

A minimum age criterion of 5 years was applied to all surveys. In the Phone Surveys, parents were always a proxy for children aged 5–13 years and parent permission was required for children aged

14–17 years. No further proxies were allowed, except for nominated individuals within a household where there was language difficulty or illness. No substitution of respondents occurred during the Phone Surveys.

### 2.1.2 What Fishing Activities Were Covered?

All boat-based recreational fishing methods were considered to be in scope, including line fishing, diving, netting, potting and spear fishing, as undertaken from a motorised vessel as per recreational fishing rules. Respondents in the Phone-Diary Survey reported the effort and catch for all fishers on the boat, which were standardised by the number of RBFL holders on each boat (i.e. catch per RBFL holder). Although fishers in the Phone-Diary survey reported catch information from Charter-boat recreational fishing, this information was excluded from analysis because Charter-boat catches are reported through mandatory Tour Operator Returns (Charter Logbooks). Charter-boat recreational fishing was not included in the Boat Ramp Surveys. Unreported illegal (non-compliant) recreational fishing activity was not included in the surveys. The proportion of RBFL holders that fished from the shore was assessed in the Screening and Benchmark Surveys.

Activities in scope were comparable with previous statewide surveys across all survey components, except for the Phone-Diary Survey. Shore-based recreational fishers, and their attributable catch, were not included in the Phone-Diary Surveys in 2013/14 and 2011/12. For this reason, the Phone-Diary Survey in 2017/18 included both boat- and shore-based recreational fishing, with shore-based recreational fishing events reported on an individual basis. It is not known if the sample of RBFL holders is representative of shore-based recreational fishers that do not hold a RBFL, therefore, shore-based recreational fishing data collected in the Phone-Diary Survey in 2017/18 requires subsequent adjustment (Taylor and Ryan 2019).

Only the results from boat-based recreational fishing are presented in this report to maintain consistency and comparability with estimates from the previous statewide surveys. Results from shore-based recreational fishing will be reported separately.

### 2.1.3 What Species Were Covered?

Species in scope included any aquatic (animal) species caught from recreational fishing. This includes both finfish (e.g. scalefish, sharks and rays) and invertebrates (e.g. abalone, cephalopods, crabs, lobsters and prawns). Most catches are reported for individual species, but there are some instances where species have been reported in taxonomic groups (e.g. School Whiting includes Southern School Whiting, Western School Whiting and Yellowfin Whiting, King Snapper includes *Pristipomoides* spp., Whaler Sharks includes Bronze Whaler and Dusky Sharks). Aggregating species at higher-level reporting groups is particularly relevant for species where misidentification can occur, despite attempts to assist fishers in identifying fish. Where species or taxa groups are represented by few records, catches are reported in broad taxonomic categories (e.g. ‘Other scalefish’). Species taxonomy follows the Codes for Australian Aquatic Biota (Rees *et al.* 2012, www.marine.csiro.au/caab/). Consistent with the management of many of the multi-species fisheries in Western Australia, the results were in some instances also reported at the species suite level.

### 2.1.4 Survey Area

The geographic scope was fishing activity in Western Australia only. Consistent with the bioregion approach to fisheries management, the spatial strata for boat-based recreational fishing were the four marine bioregions off Western Australia (Figure 1). The Phone Surveys provided statewide coverage from all access points, while the Remote Camera Surveys provided statewide coverage as accessible from key access points (e.g. boat ramps or choke points) in the survey design, and the Biological Survey included key boat ramps in the West Coast and South Coast Bioregions. Based on Ecosystem Based Fisheries Management policy, bioregions are divided into broad ecological depth based habitats (Department of Fisheries 2011, Gaughan and Santoro 2019). These are pelagic (surface waters across all depths), offshore demersal (greater than 250m), inshore demersal (20–250m), nearshore (to 20m deep), estuarine (saltwater and 'brackish' to river mouth), and freshwater (river, stream, dams) (Figure 2).

### 2.1.5 Survey Duration

The 12-months from September 2017 to August 2018 applied to the Phone-Diary, Boat Ramp and Remote Camera Surveys. The Phone Surveys included an initial Screening Survey during the three months prior to the Phone-Diary Survey, and Post-Enumeration Surveys during the three months following the Phone-Diary Survey. This survey period was consistent with the previous statewide survey (September 2015 to August 2016), but different to the first two (May 2013 to April 2014 and March 2011 to February 2012). These adjustments were made to transition the commencement of the Phone-Diary Survey to a month with lower fishing activity.

The 12-months from September to August also provides continuous coverage of peak fishing seasons in the West Coast and South Coast (i.e. summer and autumn) and peak fishing seasons in the North Coast and Gascoyne Coast (i.e. autumn and winter) (Ryan *et al.* 2013, 2015, 2017). Starting the statewide surveys in September also includes: complete fishing seasons for Western Rock Lobster (south of North West Cape from mid-October to June (i.e. closed season from July to mid-October) and blue swimmer crab in Peel Harvey Estuary from November to August (i.e. closed season from September to October); and most of the fishing season for West Coast Demersal Scalefish (i.e. closed season mid-October to mid-December).

### 2.1.6 Survey Data Elements

Inherent differences between off-site (e.g. phone) and on-site (e.g. face-to-face) sampling were considered to ensure consistency (where possible) in the information collected from each survey component. A key difference between off-site and on-site sampling is whether fishing activity is recorded on an event or trip basis. For the Phone-Diary Survey, fishing information was collected on an 'event' basis, where separate events were recorded for changes in location, habitat, target species and/or fishing method. For example, line fishing and diving during a single trip would be recorded as separate events. Fishing activity in the Boat Ramp Surveys was recorded on a 'trip' or day basis. Where possible, data elements were standardised between surveys, in terms of question wording and responses. Reference tables for data elements (such as boat ramp, species and fishing method) were also standardised among survey components.

**Table 1.** Output Specifications for each survey component.

| Specification | Item | Phone Surveys | | | Boat Ramp Surveys | Remote Camera Surveys |
|---|---|---|---|---|---|---|
| | | Screening | Phone-Diary | Benchmark | Biological | |
| Persons in scope | Residency status | All, including Western Australian residents and interstate visitors | | | All | n/a |
| | Age | <5 years excluded | | | All | n/a |
| | Sampling frame | RBFL holders | | | Spatio-temporal frame | |
| | | Sep 2016 to Aug 2017 | Sep 2017 to Aug 2018 | | | |
| Activities | Sectors | Recreational fishing only (traditional/indigenous fishing excluded) | | | | |
| | Platform | Boat- and shore-based recreational fishing (*by RBFL holders only*) | | | Boat-based recreational fishing only | |
| | Boat type | All, including private-boat, for-hire and charter-boat* | | | Private-boat and for-hire fishing (charter-boat excluded) | All, according to camera view at each ramp |
| | Methods | All methods including line fishing, diving, netting, potting and spearing | | | | |
| Species | Species | All aquatic (animal) species | | | | N/A |
| | Catch | Kept and Released | | | Kept | N/A |
| Geographic scope | Residency status | Western Australian residents, and interstate visitors | | | N/A | |
| | Fishing activity | Bioregion, marine vs freshwater | 10x10 nautical mile grids statewide | Bioregion, marine vs freshwater | 10x10 nautical mile grids statewide | N/A |
| | Fishing access | N/A | All, boat ramps (public and private), moorings and marinas | N/A | Key public boat ramps West Coast bioregion | Key public boat ramps statewide |
| Temporal scope | Annual coverage | 12-months prior to Screening (by recall) | 12-month longitudinal survey | 12-months as per Phone-Diary (by recall) | Jan–Apr 2018 | 12-months as per Phone-Diary |
| | Day hours | All | | | Daylight hours | All |
| | Survey dates | Jun–Aug 2017 | 1 Sep 2017–31 Aug 2018 | Sep–Nov 2018 | Mid-Jan to Apr 2018 | 1 Sep 2017–31 Aug 2018 |

* charter-boat recreational fishing (i.e. tour operators) was excluded from analysis in the report

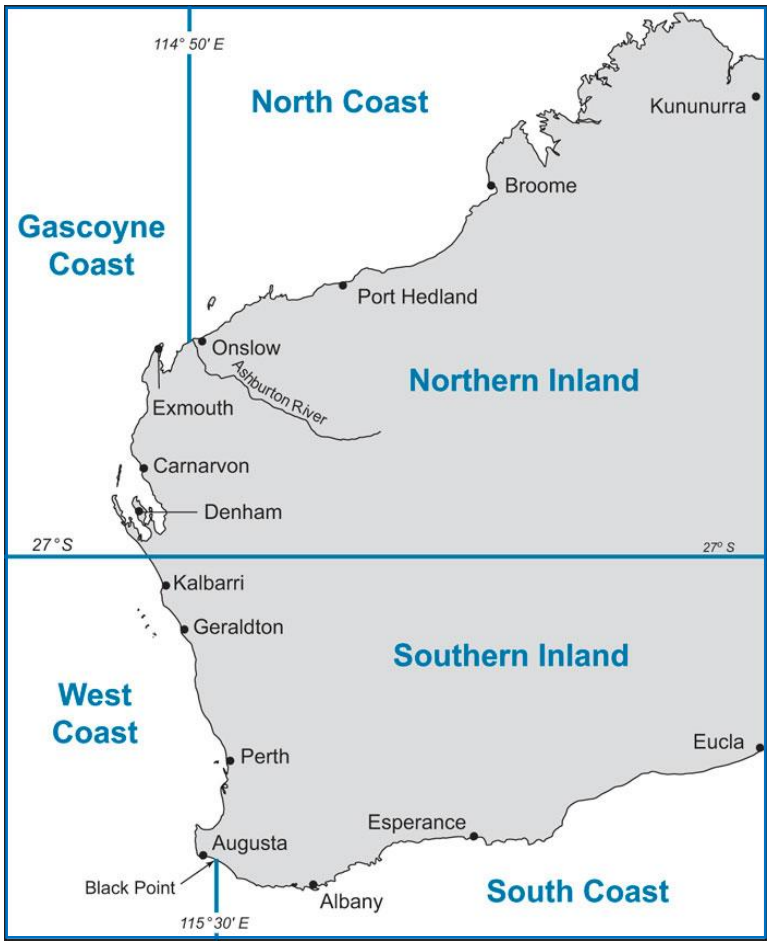


**Figure 1.** Marine bioregions for mangement of fisheries resources in Western Australia.

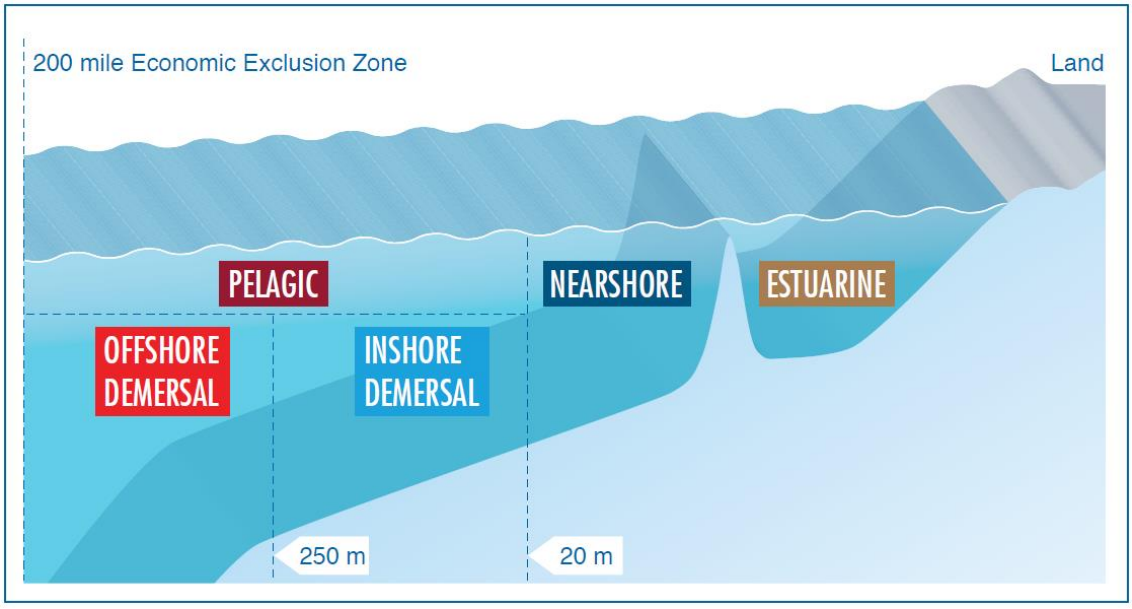


**Figure 2.** Habitat groups for mangement of fisheries resources in Western Australia.

## 2.2 Survey Components

### 2.2.1 Phone Surveys

**Survey Overview**

The Phone Surveys were the main component of the integrated survey. This off-site survey was based on the telephone/diary methodology, which has been developed and proven to provide cost-effective data over large spatial scales (i.e. statewide and bioregion). Detailed descriptions of the design philosophy and methodology are provided in Lyle *et al.* (2002) and Henry and Lyle (2003). Key features of this methodology include: (i) tested survey instruments to minimise recall bias (e.g. Diary Card); and (ii) frequent telephone contact by trained interviewers to collect data at consistent standards, reduce potential bias, explain difficult concepts, counter resistance and ensure confidentiality. The combination of the Diary Card and structured interviews is designed to minimise respondent burden, increase response rates and ensure data quality.

Interviews were conducted by Computer-Assisted Telephone Interview (CATI), which provides a cost-effective and flexible means of recording questionnaire data that is entered directly into survey databases during interviews. It also provides an effective system for ensuring data quality as work stations are networked with a supervisor. Electronic survey data is contained within secure computer networks with appropriate management systems. Interviewers were allocated fishers from a variety of Regional Development Commission (RDC) boundaries to reduce the potential for interviewer bias between strata. Where possible and practical, the same interviewer maintained repeat contacts with the same respondent. When required, interviewer notes were made available for alternative interviewers on subsequent follow-up calls.

The primary objectives of the Phone Surveys were to estimate participation (by number of RBFL holders), effort (boat days and hours fished), and catch for all species (total, kept and released, by number) for recreational fishing for 12-months at statewide and bioregion levels.

The Phone Surveys used a multi-phase survey design (Figure 3) with: an initial Screening Survey to recruit fishers to the Phone-Diary Survey; a longitudinal Phone-Diary Survey to provide detailed effort and catch information over 12-months; and Post-Enumeration Surveys (i.e. Wash Up/Attitudinal, Non-Intending Fisher and Benchmark Surveys). These separate Post-Enumeration Surveys were conducted concurrently at the end of the 12-month Phone-Diary Survey to determine and adjust for exceptions outside the distribution of behaviours covered by the Phone-Diary Survey, particularly new licence holders and non-respondents, and to enquire about opinions of RBFL holders for various fishing-related matters.

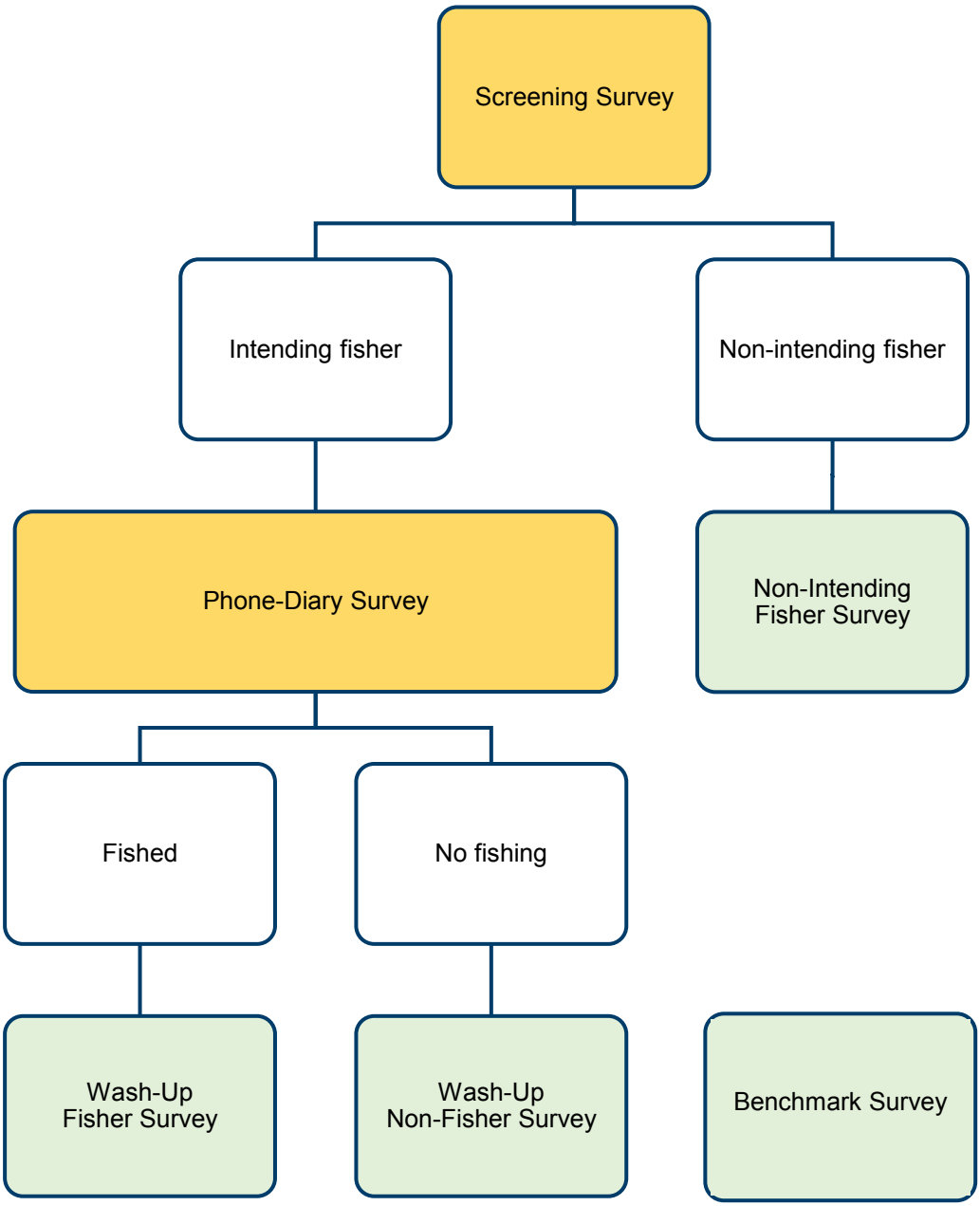


**Figure 3.** Components for the statewide survey of boat-based recreational fishing in Western Australia 2017/18.

**Screening Survey**

The Screening Survey (Figure 3) aims to collect profiling information (i.e. avidity, previous and intended fishing activity) from a random sample of RBFL holders and identifies RBFL holders that intended to fish in Western Australia during 2017/18 that were eligible for the Phone-Diary Survey. The Screening Survey was conducted by telephone interview during June to August 2017, therefore, the sampling frame was obtained from a database of fishers who purchased a RBFL between July 2016 and June 2017. The earlier timing of this sample was required to complete the survey before the Phone-Diary Survey (i.e. September 2017), but was considered to represent the population of interest (i.e. September 2016 to August 2017, Figure 4).

**Phone-Diary Survey**

The Phone-Diary Survey (Figure 3) was conducted from 1 September 2017 to 31 August 2018 to estimate effort (boat days and hours fished), and catch for all species (total, kept and released, by number) for recreational fishing for 12-months at statewide and bioregion levels. Other information was also obtained in terms of public ramp usage, fishing method, fishing location, target species and reasons for release. The Phone-Diary Survey included all (boat- and shore-based) recreational fishing in Western Australia, using all fishing methods (such as line fishing, diving, nets, traps and spearfishing). Fishing activity was classified in terms of bioregion, habitat and fishing location as defined by unique location name, latitude and longitude co-ordinates, or 10 by 10 nautical mile grid blocks (Department of Fisheries 2011).

Respondents received a Diary Kit containing a Welcome Letter, Diary Card, Species Identification Guide (with clear colour images of common species) and Fishing Location Guide. The Diary Card was similar in format to that used previously in other surveys and is designed to be a 'memory jogger' rather than a traditional fishing logbook. Respondents were encouraged to use the Diary Card to record key fishing data that could easily be forgotten (e.g. start and finish times, number of fish kept and released) and were contacted regularly by survey interviewers, who were responsible for collecting this information. Respondents also received a brief Diary Explanation Interview with the survey interviewer after receiving the Diary Kit.

Species Identification Guides (Department of Fisheries 2017) were developed to help respondents identify common species, and enhance consistent and accurate species identification. Interviewers were trained in species identification (throughout the Phone-Diary Survey) and provided with relevant taxonomic references (Hutchins and Swainston 1999, Jones and Morgan 2002, Allen 2009, Rome and Newman 2010).

Fishing information was collected by monthly telephone interviews, even for fishers who indicated they were unlikely to fish in the subsequent month. More regular telephone interviews were made to the more avid fishers to minimise the potential for recall bias to influence fishing information. Some respondents did not actually fish during the Phone-Diary Survey, despite intending to during the Screening Survey. These fishers ‘dropped-out’ of the fishery, but this was in the range of expected behaviours for the survey.

### Wash-Up/Attitudinal Surveys

The Wash-Up/Attitudinal Survey was conducted during September to November 2018 to confirm completion of the survey, assess opinions and attitudes for a range of fisheries related issues, and collect boat-profiling information. Other questions were included to assess respondents' perceptions as to whether they fished '*more, less or about the same*' amount of time in the last 12-months, compared with the prior 12-months. Different Wash-Up/Attitudinal Surveys were administered (as appropriate) for respondents that fished, or did not fish, during the Phone-Diary Survey (Figure 3). This attitudinal information will be published separately.

### Non-Intending Fisher Survey

The Non-Intending Fisher Survey (Figure 3) was conducted during September to November 2018 to record the incidence of fishing by RBFL holders sampled in the Screening Survey that were not intending to fish in the next 12-months. These respondents were not eligible for the Phone-Diary Survey, but it was important to identify and account for 'unexpected fishing' that may have occurred during the 12-months. This 'call-back' survey determined the impact of unexpected 'drop-ins' to the fishery.

### Benchmark Survey

The Benchmark Survey (Figure 3) was conducted during September to November 2018 to identify the impact of additional 'drop-ins' to the fishery, such as RBFL holders who purchased a new licence in 2017/18 after the initial sample was drawn. This survey was essentially a repeat of the Screening Survey, with aims to collect profiling information (i.e. avidity, previous and intended fishing activity) for a random sample of people that were in possession of an RBFL for 12-months concurrent with the Phone-Diary Survey. Therefore, the sampling frame for the Benchmark Survey was obtained from a database of fishers who purchased a RBFL between September 2017 and August 2018 (Figure 5), excluding RBFL holders that had been selected for the Screening Survey. Most importantly, the Benchmark Survey provided the necessary information for licence holders from the current RBFL population for calibration and expansion of results from the Phone-Diary Survey.

### Survey Documentation

The Phone Survey methodology utilises survey instruments, including questionnaires and interviewer manuals, to facilitate the collection/recording of survey data. These were initally produced following extensive design and testing (Survey Development Working Group 2000), and have been revised with subsequent statewide surveys (in each state and Territory). Highly structured questionnaires, with due consideration to question wording, instructions to interviewers and pre-coded answer categories were included in accordance with a range of standardised interviewing conventions. An equivalent approach was employed for all Phone Survey components in the present study, including thorough training and monitoring of interviewers, and development of a comprehensive interviewer manual.

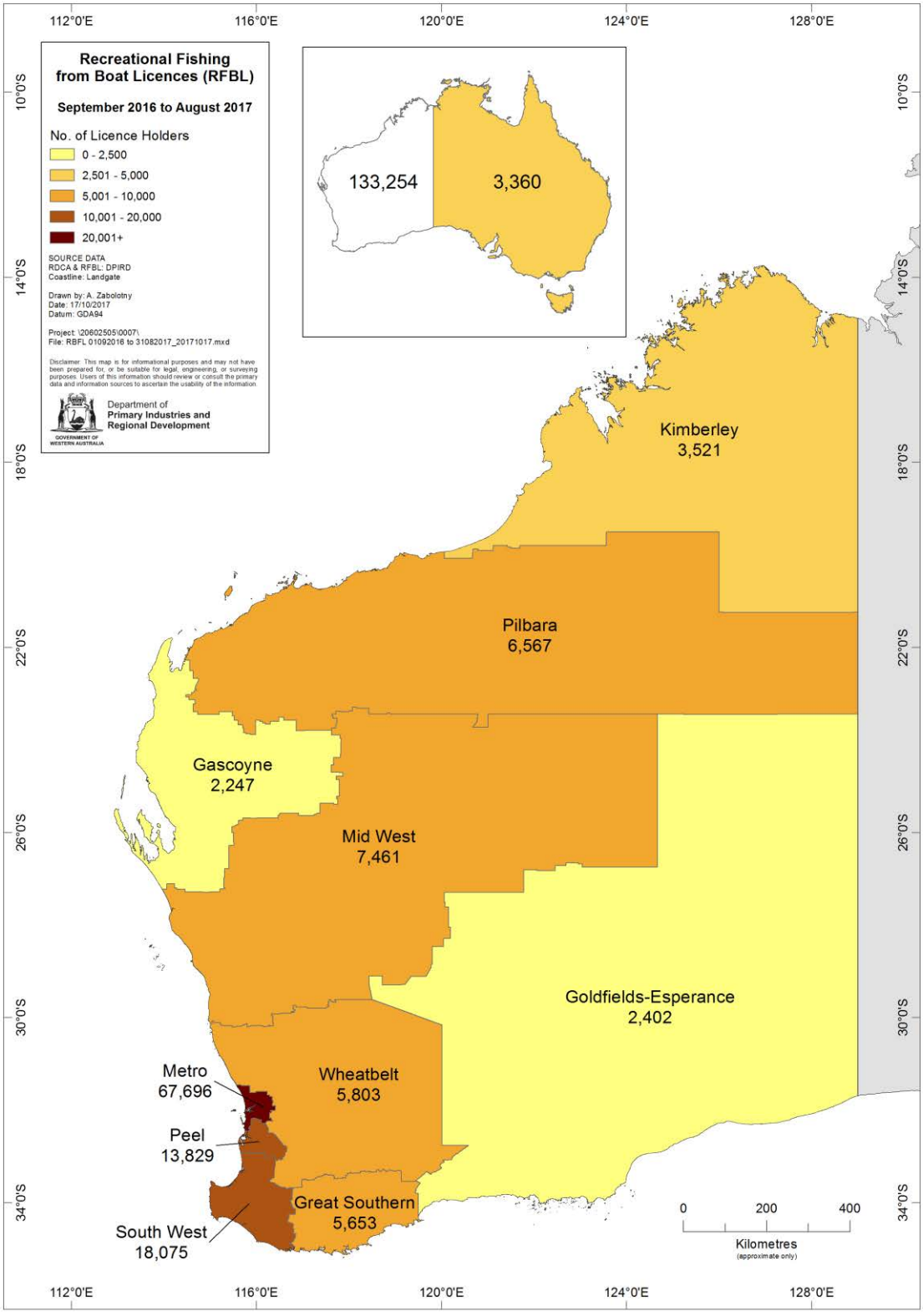


**Figure 4.** Number of RBFL holders within Regional Development Commission Boundaries from September 2016 to August 2017.

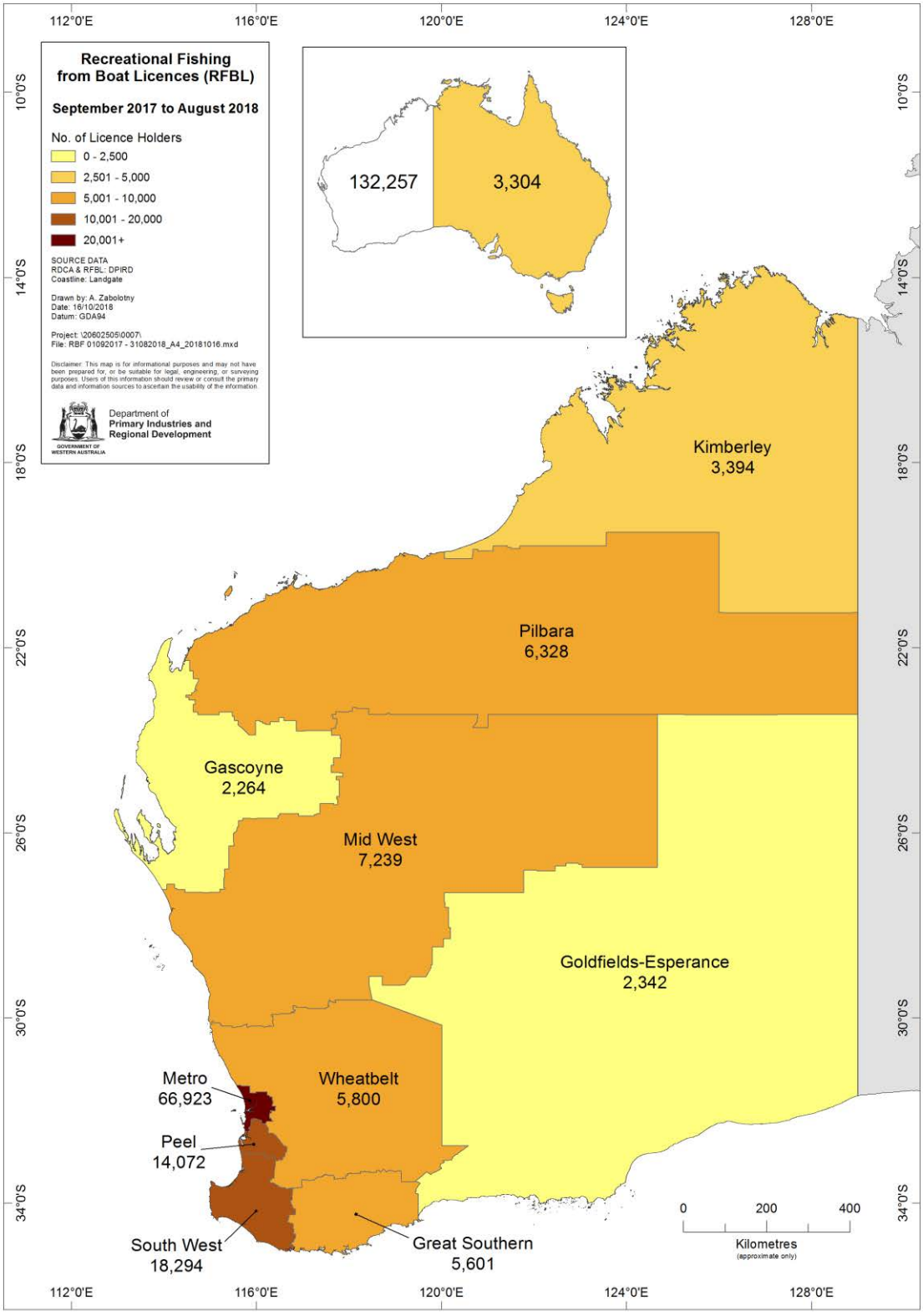


**Figure 5.** Number of RBFL holders within Regional Development Commission Boundaries from September 2017 to August 2018.

**Response Profiles**

A summary of response profiles relating to the Screening, Phone-Diary and Benchmark Surveys is given in Table 2. The majority (57%) of sample loss in the Screening Survey was from disconnected telephone numbers (3.4% of the gross sample) and from mobile phones being switched off (3.1% of gross sample). Sample loss also occurred where the respondent was not known at the number (1.3% of the gross sample), the respondent had moved and was known, but no new contact details were available (0.9%), the respondent was away for the survey (2.1%), fax/modem numbers (<0.1%), language difficulties (0.1%), duplicate number (0.1%), or respondent incapacitated or deceased (0.4%).

There were 3,441 RBFL holders identified as eligible for the Phone-Diary Survey (i.e. having an intention to fish in Western Australia during September 2017 to August 2018). This represented 81% of the fully responding group from the Screening Survey. Of the eligible RBFL holders, 3,234 (94%) agreed to participate in the Phone-Diary Survey. Subsequently, 2,931 respondents completed the Phone-Diary Survey, representing 98% completion rate among uptake, or 92% among eligible (Table 2). The 303 respondents that failed to complete the Phone-Diary Survey were mainly from sample loss (number no longer connected) and refusals.

The majority (75%) of sample loss in the Benchmark Survey was from disconnected telephone numbers (4.5% of the gross sample) and mobile never on (3.4% of gross sample). Sample loss also occurred where the respondent was not known at the number (0.8% of the gross sample), the respondent was known but no new contact details were available (0.8%), or the respondent was away for the survey (0.4%), language difficulties (<0.1%), duplicate number (0.2%), or respondent incapacitated or deceased (0.5%).

The initial Screening Survey conducted prior to the Phone-Diary Survey was based on a sample of 4,953 RBFL holders, of which 97.1% were fully responding (i.e. completed all required interview questions) (Table 2). The 127 non-responding RBFL holders were either non-contacts (1.5% of the net sample) or refusals (1.4% of the net sample). Similarly, the Benchmark Survey conducted after the Phone-Diary Survey was based on a sample of 5,195 RBFL holders, of which 96.9% were fully responding. The 143 non-responding RBFL holders were non-contacts (1.6% of the net sample) or refusals (1.5% of the net sample).

Non-response in the Screening and Benchmark Surveys were minimised by completing a minimum 20 effective calls to each respondent number, over a range of day times and days of the week, during the survey. Refusal rates were low for both surveys, and could be attributable to the use of experienced interviewers and the fact that relevance of the subject matter strongly correlates with response propensity (i.e. an 'interest' in fishing).

Response rates were relatively consistent across all sampling strata, and with previous statewide surveys (see Ryan *et al.* 2013, 2015, 2017). The response rates achieved in all components of this study were very high, which provides confidence in overall data quality and minimises the impact of non-response bias.

**Table 2.** Sample size and response profile for Screening, Phone-Diary and Benchmark Surveys by stratum.

| SCREENING SURVEY | Total RBFL Holders | Initial sample | Sample loss | Net sample | Non-response | Full response | Response rate |
|---|---|---|---|---|---|---|---|
| Kimberley | 3,521 | 250 | 29 | 221 | 5 | 216 | 97.74% |
| Pilbara | 6,567 | 250 | 36 | 214 | 6 | 208 | 97.20% |
| Gascoyne | 2,247 | 250 | 22 | 228 | 9 | 219 | 96.05% |
| Mid West | 7,461 | 350 | 45 | 305 | 11 | 294 | 96.39% |
| Wheat Belt | 5,803 | 250 | 23 | 227 | 3 | 224 | 98.68% |
| Metro | 67,696 | 2,280 | 190 | 2,090 | 43 | 2,047 | 97.94% |
| Peel | 13,829 | 400 | 44 | 356 | 9 | 347 | 97.47% |
| South West | 18,075 | 670 | 77 | 593 | 8 | 585 | 98.65% |
| Great Sth'n | 5,653 | 250 | 25 | 225 | 4 | 221 | 98.22% |
| Gold fields | 2,402 | 250 | 17 | 233 | 4 | 229 | 98.28% |
| Interstate | 3,360 | 250 | 21 | 229 | 2 | 227 | 99.13% |
| **TOTAL** | **136,614** | **5,450** | **529** | **4,921** | **104** | **4,817** | **97.89%** |

| PHONE-DIARY SURVEY | Full response at screening | Eligible for the Diary Survey | Diary Uptake | Diary Survey Completed | Uptake rate among eligible (%) | Completion rate among uptake (%) | Completion rate among eligible (%) |
|---|---|---|---|---|---|---|---|
| Kimberley | 216 | 163 | 158 | 138 | 96.93% | 87.34% | 84.66% |
| Pilbara | 208 | 170 | 161 | 141 | 94.71% | 87.58% | 82.94% |
| Gascoyne | 219 | 154 | 144 | 132 | 93.51% | 91.67% | 85.71% |
| Mid West | 294 | 210 | 205 | 197 | 97.62% | 96.10% | 93.81% |
| Wheatbelt | 224 | 158 | 152 | 141 | 96.20% | 92.76% | 89.24% |
| Metro | 2,047 | 1,396 | 1,343 | 1,259 | 96.20% | 93.75% | 90.19% |
| Peel | 347 | 252 | 245 | 223 | 97.22% | 91.02% | 88.49% |
| South West | 585 | 418 | 401 | 374 | 95.93% | 93.27% | 89.47% |
| Great Sth'n | 221 | 171 | 164 | 153 | 95.91% | 93.29% | 89.47% |
| Goldfields | 229 | 174 | 170 | 159 | 97.70% | 93.53% | 91.38% |
| Interstate | 227 | 81 | 77 | 72 | 95.06% | 93.51% | 88.89% |
| **TOTAL** | **4,817** | **3,347** | **3,220** | **2,989** | **96.21%** | **92.83%** | **89.30%** |

| BENCHMARK SURVEY | Total RBFL Holders | Initial sample | Sample loss | Net sample | Non-response | Full response | Response rate |
|---|---|---|---|---|---|---|---|
| Kimberley | 3,394 | 280 | 34 | 246 | 12 | 234 | 95.12% |
| Pilbara | 6,328 | 280 | 25 | 255 | 11 | 244 | 95.69% |
| Gascoyne | 2,264 | 280 | 37 | 243 | 7 | 236 | 97.12% |
| Mid West | 7,239 | 290 | 24 | 266 | 10 | 256 | 96.24% |
| Wheatbelt | 5,800 | 280 | 13 | 267 | 5 | 262 | 98.13% |
| Metro | 66,923 | 2,150 | 183 | 1,967 | 50 | 1,917 | 97.46% |
| Peel | 14,072 | 435 | 45 | 390 | 15 | 375 | 96.15% |
| South West | 18,294 | 575 | 57 | 518 | 28 | 490 | 94.59% |
| Great Sth'n | 5,601 | 280 | 23 | 257 | 8 | 249 | 96.89% |
| Goldfields | 2,342 | 280 | 27 | 253 | 11 | 242 | 95.65% |
| Interstate | 3,304 | 280 | 23 | 257 | 1 | 256 | 99.61% |
| **TOTAL** | **135,561** | **5,410** | **491** | **4,919** | **158** | **4,761** | **96.79%** |

### 2.2.2 Boat Ramp Surveys

On-site Biological Surveys were completed at 19 boat ramps in the West Coast from January to April 2018 to obtain length and weight information enablingestimates of catch (by number) from the Phone-Diary Survey to be converted to catch (by weight). This enables direct comparison of recreational harvest estimates to commercial fishery information, which is routinely recorded as weights. Data were collected from 2,773 boat-based recreational fishing parties in the West Coast, with over 7,352 fish and other aquatic organisms measured. Due to the limited availability of resources, data were not collected in the South Coast, Gascoyne Coast and North Coast.

The target population included boat-based recreational fishers who retrieved from key boat ramps where research staff conducted face-to-face interviews with recreational fishers. The survey was based on a targeted design informed by data collected during the Biological and Remote Camera Surveys in 2011/12 (Ryan *et al.* 2013), 2013/14 (Ryan *et al.* 2015) and 2015/16 (Ryan *et al.* 2017). By targeting key boat ramps at peak times of fishing activity (i.e. season, day type and time of day) the surveys aimed to maximise the collection of biological information. The primary sampling unit was sample day and the secondary sampling unit was fishing party, which could include both RBFL holders and non-licensed fishers.

Spatial stratification for the Biological Survey in the West Coast bioregion included regions and zones, within which 18 boat ramps were sampled, including 4 ramps in the North Zone, 9 in the Metro zone and 5 ramps in the South zone.

Temporal stratification was determined by day type and time of day, which have a major influence on boating activity in the West Coast bioregion. Surveys were therefore scheduled during the middle of the day and predominately on weekends or public holidays, to coincide with the busiest periods of boating activity. The aim was to collect a similar number of fish measurements in the West Coast bioregion as the previous Biological Surveys in 2011/12, 2013/14 and 2015/16 and, as a result, 1–2 surveys per week were randomly scheduled at each ramp, with equal allocation across month. Sample days were approximately 4-hours duration and confined to daylight hours only.

Prior to the commencement of the survey, interviewers were provided with training in interview techniques, survey instruments and species identification as well as documentation relating to interviewer guidelines, forms and questionnaires.

The average weights of key species obtained from the Biological Surveys are utilised in Chapter 9 (Harvest Weights) to convert estimates of catch (by numbers) to weight. Depending on the species, its distribution and the number of measurements obtained, a statewide or bioregional value may be applied. Alternatively, if insufficient data are available from the Biological Survey then data from unpublished Tour Operator Returns may be used as an alternative data source.

Summaries of average weight for all species collected from the West Coast Bioregion during the Boat Ramp Surveys are also given in Appendix 1. This includes the number of weight measurements recorded, average weight (measured in grams where >10 measurements were obtained statewide) and

standard error. Additional results from the previous Biological Surveys in 2011/12, 2013/14 and 2015/16 are provided in a separate report (Smallwood et al. 2017).

### 2.2.3 Remote Camera Surveys

The Remote Camera Surveys monitor recreational boating activity via digital cameras at key boat ramps and choke points to assist with the corroboration and validation of estimated effort (from the Phone-Diary Survey) and determining levels of boating activity between statewide surveys. The position of cameras at each access point was determined by the available infrastructure and logistics of transmitting information (Blight and Smallwood 2015). Cameras were positioned at boat ramps (which excludes boat movements from moorings) or choke points (which includes boat movements from moorings). A framework for the integration of Remote Camera Surveys with recreational fishing surveys is provided in a separate report (Steffe *et al*. 2017).

Camera data are aggregated to provide the number of powerboat retrievals over 24-hours for 12-months concurrent with the Phone Diary Surveys. Although remote cameras are expected to operate continously, outages occurred as a result of technological failure and extreme weather (e.g. power loss and cyclones). A new method of accomodating short- and medium-term data loss due to outages has been generated that uses climatic and temporal variables to "fill in" missing gaps in the camera footage (Afrifa-Yamoah *et al.* in prep). This method has been applied to remote camera data for six high use ramps in the Perth Metropolitan region (Ocean Reef, Mindarie, Hillarys, Leeuwin and Woodman Point) for which the estimated number of powerboat launches and retrievals was generated to coincide with previous 2011/12, 2013/14, 2015/16 Phone-Diary Surveys.

These estimates will be reported in a separate publication. Ongoing research is investigating the trade-off between the cost of reading the camera data and the precision of the estimates of boating activity obtained for the various sampling designs and sample sizes. This will assist in the ongoing monitoring of boating activity at key access points, including the cost-effective reading of the remote camera data to coincide with the 2017/18 Phone-Diary Survey.

To concide with the 2017/18 Phone-Diary Survey, estimates of boating activity have been generated for the three public boat ramps that provide access to Shark Bay: (i.e. Denham, Monkey Mia and Nanga.), where there was minimal missing data. These estimates are reported in a separate publication entititled "Integrated survey of boat-based recreational fishing in inner Shark Bay 2018/19" (Taylor *et al.* 2019) because they form the basis of ramp-based estimates of the recreational catch in inner Shark Bay.

## 2.3 Phone-Diary Survey Expansion, Weighting and Analysis

The Phone Surveys design incorporate stratified random sampling with samples divided into homogenous units to reduce sampling variance (Cochran 1977, Pollock *et al.* 1994, Lohr 2010, Särndal *et al.* 2003). These strata related to Regional Development Commission Boundaries and the Perth Metropolitan region in Western Australia. The number of samples within each stratum were selected proportionally to the size of the stratum. A single residential stratum applied to

interstate RBFL holders (<2% of all RBFL holders). Overseas RBFL holders (<0.02% of all RBFL holders) were excluded from the Phone Surveys. Exclusions from the sampling frame occurred before sample selection where currency of address information was invalid or fishers were identified as having multiple licences. All sampling was done without replacement.

Data from Phone Surveys that use the White Pages as a sampling frame can be expanded to the total population using profiles from the Australian Bureau of Statistics, based on household structure, age and gender (Giri and Hall 2015, Lyle *et al.* 2014, Webley *et al.* 2015, West *et al.* 2012, West *et al.* 2015). However, a different approach is required for surveys that use licence sampling frames, particularly if the database is constantly changing. Analysis of the RBFL database indicates that approximately 25% of RBFL holders do not renew their licence (i.e. 'drop-out'), while approximately 25% of RBFL holders take up a new licence (i.e. 'drop-in') each year. Samples were taken prior to each Screening Survey for all licence holders eligible to fish in the previous 12 months and the Phone-Diary Survey did not progressively sample and recruit new entrants to the RBFL population during the survey.

The Benchmark and Non-Intending Fisher Surveys were designed to assist in matching respondents from the Phone-Diary Survey (sampled from the RBFL population in 2016/17) to the RBFL population in 2017/18 (i.e. people that had a licence) during the Phone-Diary Survey. Calculation of weighting factors requires counter-parting respondents in the Phone-Diary Survey (based on actual days fished) with respondents in the Benchmark Survey (based on recalled days fished). This process accounts for behavioural differences that result from the dynamic nature of the RBFL population. Counter-parting was based on recall and actual effort collected during the Phone-Diary Survey to account for a likely overestimate of recalled effort in the Benchmark Survey. The sample weight (or expansion factor) for a given subsample was determined by the inverse of the fraction it represented in the population, according to the following equation, where $\alpha_{hi}$ = weight for RBFL holder $i$ in stratum $h$, $N_h$ = total number of RBFL holders in stratum $h$, $n_h$ = number of RBFL holders sampled in stratum $h$.

$$\alpha_{hi} = \frac{N_h}{n_h}$$

The total catch of species in each stratum over the Phone-Diary Survey was calculated by multiplying the weighted catch for all respondents in each stratum by the number of RBFL holders in each stratum for the relevant RBFL population, as determined by the Benchmark Survey. This approach accounts for: fishers that unexpectedly 'drop-out' from the Phone-Diary Survey (i.e. respondents that intended to fish, but did not); fishers that unexpectedly 'drop-in' during the Phone-Diary Survey (i.e. respondents in the Screening Survey that did not intend to fish during the Phone-Diary Survey, but actually did); and additional 'drop-in' fishers (i.e. fishers who were not eligible for sample selection for the Screening Survey, but purchased a RBFL during the Phone-Diary Survey).

Raw data collected from respondents have been initially expanded by the number of RBFL holders in the residential stratum divided by the number of RBFL holders sampled in residential stratum.

Future estimates may be based on adjustment of weighting factors to account for avidity bias and non-intending fishing and will be reported separately (as required). Parameter estimates in this report are based on expanded data, scaled-up to represent the appropriate stratum population. Estimates were determined for participation (by number of RBFL holders), effort (boat days and hours fished) and catch for all species (total, kept and released, by number). Estimates of average weight were obtained from Boat Ramp Surveys or Tour Operator Returns. Expansion of Phone Survey data to population estimates was undertaken using the *survey* package (Lumley 2004, 2010) in the statistical computing language *R* (R Core Team 2016). Detailed descriptions of the *survey* and *recsurvey* packages are given in Lumley (2010) and Lyle *et al.* (2010) respectively.

## 2.4 Uncertainty

The integrated surveys provide catch estimates in a cost-effective manner; however, they are still surveys, and as such, cannot be expected to provide the level of precision that would be available from a total census. As such, three measures of uncertainty are used:

i. Standard error indicates the difference between the estimate (obtained from a sample) and the true value (of the population). The standard error of the estimate is calculated from the standard deviation of the sample divided by the sample size.

ii. Relative standard error indicates the uncertainty expressed as a percentage of the estimate (or as decimal values from 0.00 to 1.00), allowing comparisons between estimates that accounts for differences in the magnitude of estimates. The relative standard error of the estimate is calculated from the standard error of the sample divided by the estimate.

iii. Confidence intervals represent the range in which the population value is likely to occur as determined by the estimate and associated standard error. The 95% confidence intervals are equal to the estimate plus or minus 1.96 multiplied by the standard error. This indicates the chance of the population value occurring within approximately two standard errors of the estimate. Confidence intervals are most frequently used to determine statistical significance where the difference between two estimates is considered statistically significant if the probability that they are different is at least 95%.

Interpretation of estimates requires consideration of both the number of fishers that contributed to the estimate and the magnitude of the relative standard error. Where required, estimates in tables have been highlighted to identify sample size <30 fishers and relative standard error >40% (or 0.40) (Lyle *et al.* 2014, Ryan *et al.* 2017, Webley *et al.* 2015, West *et al.* 2015). For estimates of catch, the sample size refers to the number of fishers reporting a catch of that species (either kept or released). These cautions indicate that estimates may not be robust.

## 2.5 Reporting Notes

Estimates include uncertainty, with associated standard errors provided in all tables and figures, although these are not routinely cited in text. The tables also provide an indication of whether estimates are considered robust (i.e. sample size ≥30 and relative standard error ≤0.40). Estimates

from the current statewide survey are compared with previous statewide surveys in 2015/16, 2013/14 and 2011/12, as appropriate.

Recreational fishers that did not hold a RBFL (including many shore-based only recreational fishers) and RBFL holders that intended to fish only in freshwater were out of scope for the Phone-Diary Survey. Therefore, estimates of catch for inland, estuarine and nearshore species provided in this report, particularly those harvested with high proportions of shore-based effort, will be underestimated. Additionally, catch estimates for Western Rock Lobster, which can be harvested by fishers with only a Rock Lobster licence, will also be underestimated.

This report presents estimates for boat-based recreational fishing to maintain consistency and comparability with estimates from previous statewide surveys. Estimates for shore-based recreational fishing and Rock Lobster will be reported separately.

Confidence intervals are used to summarise temporal changes between annual estimates. If the 95% confidence intervals overlap, then there is assumed to be no statistical difference, and this is described in this report as "*steady*". If the 95% confidence intervals do not overlap, then there is a statistical difference (i.e. the probability that they are different is at least 95%), which is described in this report as "*increasing*" (if the latest estimate is higher than previous) or "*decreasing*" (if the latest estimate is lower than previous).

While this report compares estimates from four statewide surveys of boat-based recreational fishing with RBFL, additional catches from charter-boat recreational fishing (reported in Tour Operator Returns), Rl-only licences and shore-based fishing (where available) are used to determine the total catch from the recreational sector. Specific performance indicators, reference levels and catch tolerances will be reported separately, and used to provide trends in total catch to assist in developing, monitoring and refining management arrangements.

# 3 Participation

This section presents results from the Screening and Benchmark Surveys. These cross sectional, recall surveys were based on respondents that held a Recreational Boat Fishing Licence (RBFL) between September 2016 to August 2017 (Screening) and September 2017 to August 2018 (Benchmark). These results are highly comparable to those from previous statewide surveys.

## 3.1 Fishing Participation

From the population of 136,614 RBFL holders that held a licence in the 12 months prior to September 2017 (2016/17; Figure 4) an estimated 106,823 (78%) RBFL holders fished at least once, and an estimated 29,791 (22%) did not fish in Western Australia (Figure 6a). Similarly, from the population of 135,561 RBFL holders in the 12 months prior to September 2018 (2017/18; Figure 5) an estimated 102,113 (75%) RBFL holders fished at least once, and an estimated 33,448 (25%) did not fish.

Higher participation occurred for boat-based recreational fishing compared with both (boat- and shore-based) (Figure 6b) and in marine water compared with freshwater and both (salt- and freshwater) (Figure 6c); however, participation in shore-based and freshwater-only recreational fishing may be lower for RBFL holders than for shore-based fishers (i.e. non-RBFL holders).

Males accounted for the majority of RBFL holders (87% of all RBFL holders in 2016/17 and 86% in 2017/18). Females accounted for 13% in 2016/17 and 14% of RBFL holders in 2017/18 (Figure 6d).

The highest numbers of RBFL holders that fished were in the 45 to 59-year age group (31% of all RBFL holders that fished in 2016/17 and 2017/18), followed by the 30 to 44-year age group (27% in 2016/17 and 26% in 2017/18; Figure 6e), the 15 to 29-year age group (13% in 2016/17 and 12% in 2017/18), and the 60 to 74-year age group (21% in 2016/17 and 24% in 2017/18). The lowest numbers of RBFL holders that fished were in the 5 to 14-year age group (4% in 2016/17 and 2017/18) and the 75 year or older group (3% in 2016/17 and 4% in 2017/18).

The number of days fished (by recall) in the 12-months prior to each survey is a measure of the fishing avidity. RBFL holders were equally likely to recall fishing 5 to 14 days (36% in 2016/17 and 38% in 2017/18) or 15 days or more (36% in 2016/17 and 34% in 2017/18; Figure 6f). Lower proportions of RBFL holders (29% in 2016/17 and 26% in 2017/18) recalled fishing less than 5 days during each 12-months.

RBFL holders were most likely to recall fishing in the West Coast (66% in 2016/17 and 61% in 2017/18; Figure 6g). Lower proportions of RBFL holders recalled fishing in the South Coast (13% in 2016/17 and 14% in 2017/18); North Coast (11% in 2016/17 and 13% 2017/18); and Gascoyne Coast (9% in 2016/17 and 12% in 2017/18).

Similar statewide trends were observed in estimated participation for the 12-months prior to previous Screening and Benchmark Surveys (see Ryan *et al.* 2013, 2015, 2017). However, differences in estimated participation occurred according to residence (Perth Metropolitan,

Regional Development Commissions (RDC), and Interstate), which are discussed in the remainder of this chapter. Notably, RBFL holders were most likely to fish in the bioregion closest to their home residence (e.g. residents from the Kimberley and Pilbara were most likely to fish in the North Coast). However, many RBFL holders travel throughout the state (e.g. residents from the Mid West, Metro and Peel fished in the South Coast, and residents from the Kimberley, Pilbara and Gascoyne fished in the West Coast).

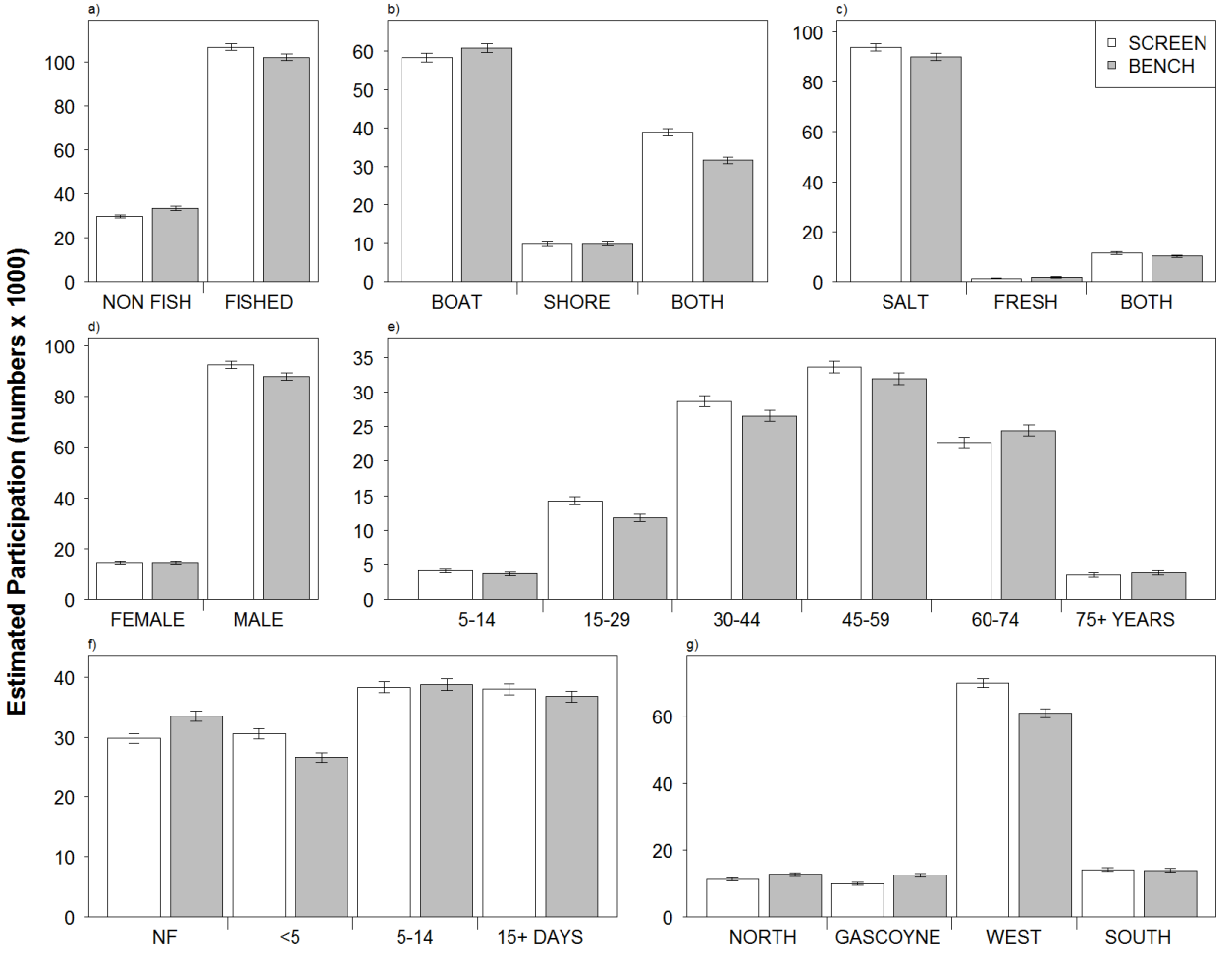


**Figure 6.** Estimated number of RBFL holders aged five years and older who fished recreationally in the 12-months prior to September 2017 (white bars, SCREEN, Screening Survey) and September 2018 (grey bars, BENCH, Benchmark Survey); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.2 Kimberley

A total of 3,521 residents in the Kimberley RDC held an RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 2,869 (81%) fishing at least once in 2016/17; Figure 7a). Similarly, 3,394 residents held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 2,814 (83%) fishing at least once in 2017/18. Most RBFL holders were male (78% in 2016/17 and 77% in 2017/18), and higher proportions of females participated in fishing (22% in 2016/17 and 23% in 2017/18; Figure 7d) compared with statewide estimates. The majority of RBFL holders that fished were in the 30 to 44-year age group (37% in 2016/17 and 33% in 2017/18) or the 45 to 59-year age group (35% in 2016/17 and 39% in 2017/18; Figure 7e). Most RBFL holders recalled fishing 15 days or more (56% in 2016/17 and 55% in 2017/18; Figure 7f) and fished in the North Coast (92% in 2016/17 and 93% in 2017/18; Figure 7g).

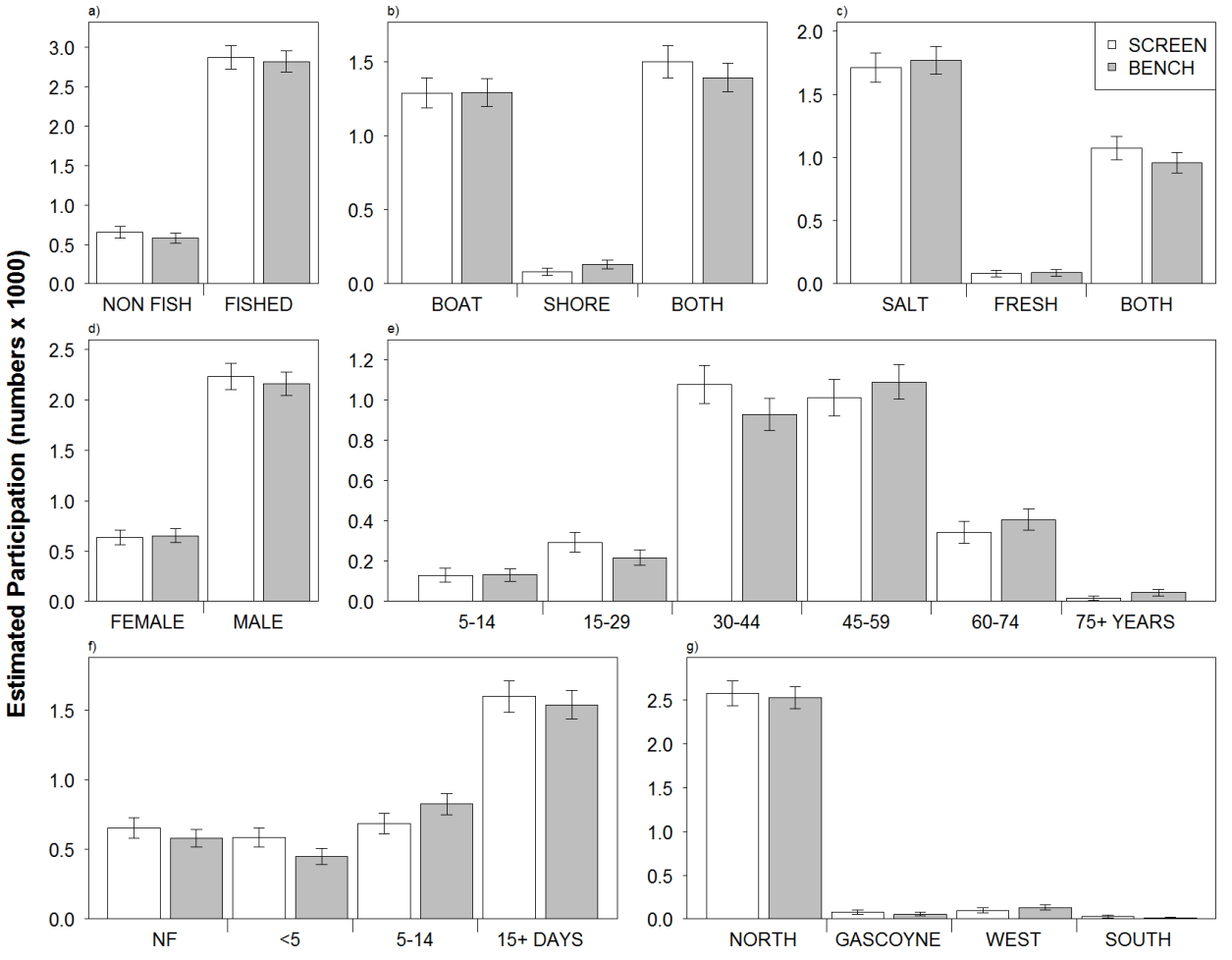


**Figure 7.** Estimated number of Kimberley RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.3 Pilbara

A total of 6,567 residents in the Pilbara RDC held an RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 5,746 (87%) fishing at least once in 2016/17 (Figure 8a). Similarly, 6,328 residents held an RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 5,317 (84%) fishing at least once in 2017/18. Males accounted for the majority of RBFL holders (80% in 2016/17 and 83% in 2017/18), and higher proportions of females participated in fishing (20% in 2016/17 and 17% in 2017/18; Figure 8d) compared with statewide estimates. Most RBFL holders that fished were in the 30 to 44-year age group (47% in 2016/17 and 35% in 2017/18) or the 45 to 59-year age group (29% in 2016/17 and 38% in 2017/18; Figure 8e), recalled fishing 15 days or more (43% in 2016/17 and 41% in 2017/18; Figure 8f), and fished in the North Coast (89% in 2016/17 and 82% in 2017/18; Figure 8g).

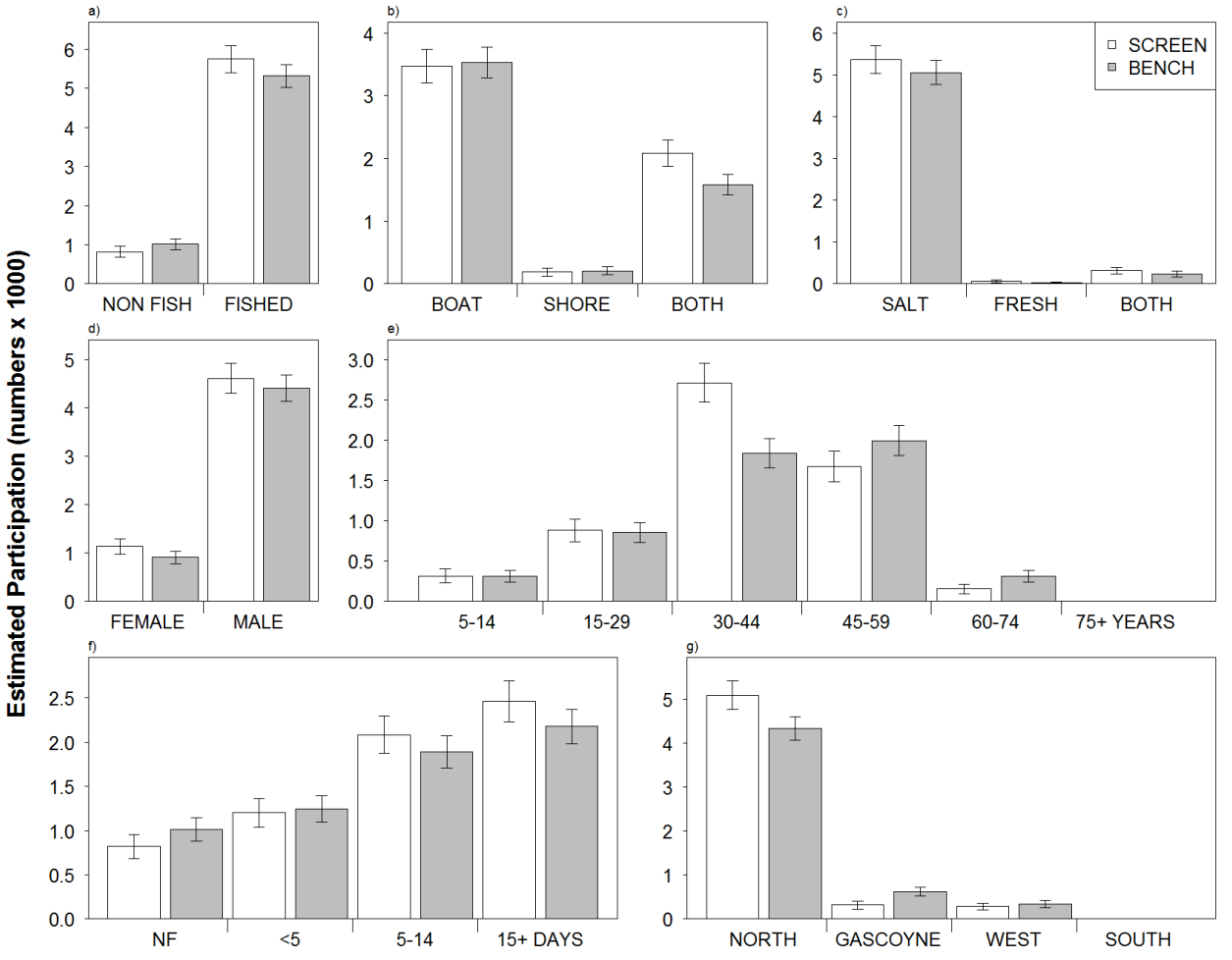


**Figure 8.** Estimated number of Pilbara RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.4 Gascoyne

A total of 2,247 residents in the Gascoyne RDC held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 1,755 (78%) fishing at least once in 2016/17 (Figure 9a). Similarly, 2,264 residents held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 1,583 (70%) fishing at least once in 2017/18. Males accounted for the majority of RBFL holders (79% in 2016/17 and 75% in 2017/18), and higher proportions of females participated in fishing (21% in 2016/17 and 25% in 2017/18; Figure 9d) compared with statewide estimates. Most RBFL holders that fished were in the 30 to 44-year age group (26% in 2016/17 and 32% in 2017/18) or the 45 to 59-year age group (28% in 2016/17 and 31% in 2017/18; Figure 9e). RBFL holders were most likely to recall fishing 15 days or more (48% in 2016/17 and 53% in 2017/18; Figure 9f), and most likely to fish in the Gascoyne Coast (94% in 2016/17 and 93% in 2017/18; Figure 9g).

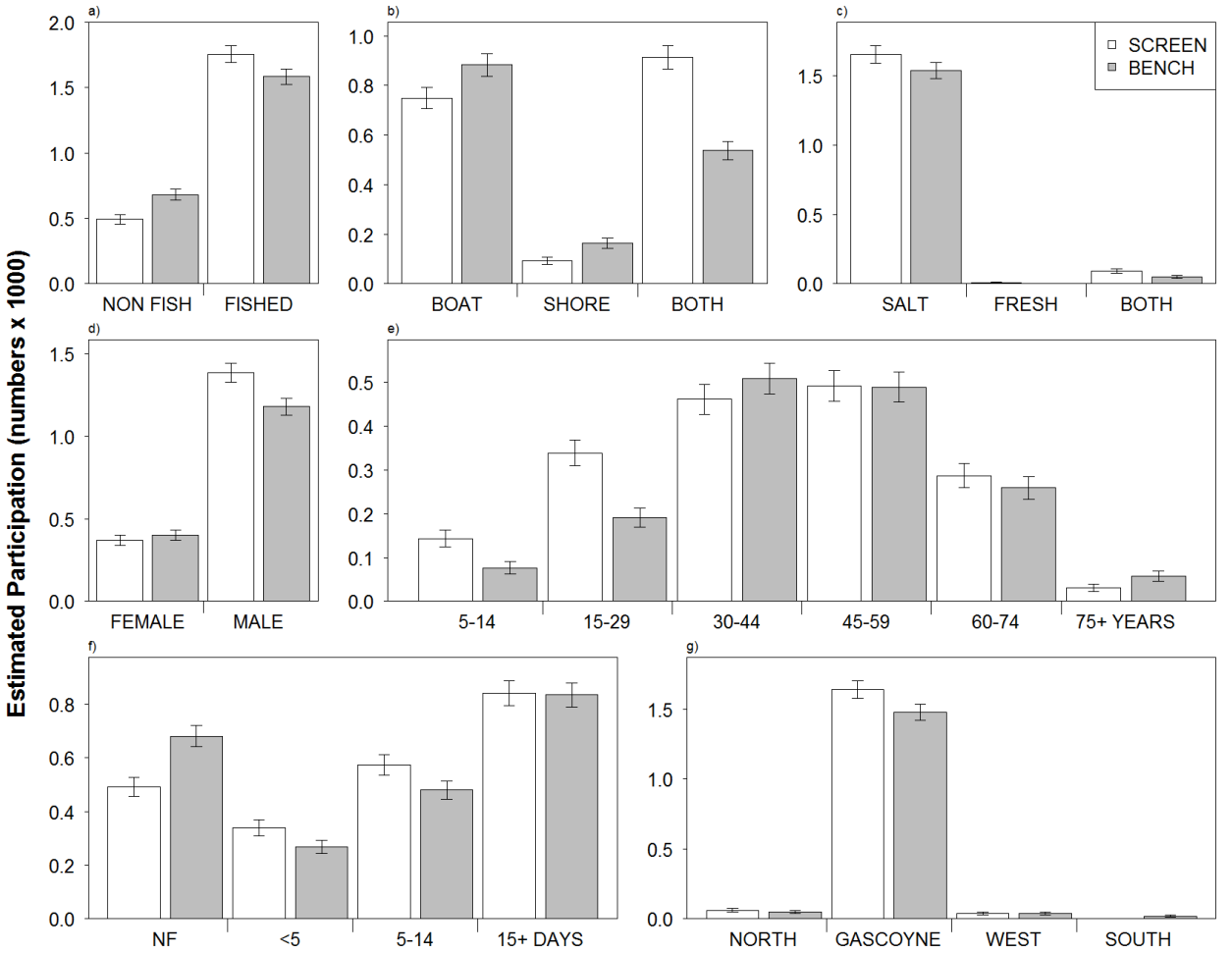


**Figure 9.** Estimated number of Gascoyne RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.5 Mid West

A total of 7,461 residents in the Mid West RDC held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 5,685 (76%) fishing at least once in 2016/17 (Figure 10a). Similarly, 7,239 residents held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 5,260 (73%) fishing at least once in 2017/18. Males accounted for the majority of RBFL holders (82% in 2016/17 and 83% in 2017/18), and lower proportions of females participated in fishing (18% in 2016/17 and 17% in 2017/18; Figure 10d) consistent with statewide estimates. Most RBFL holders were in the 45 to 59-year age group (34% in 2016/17 and 28% in 2017/18; Figure 10e); recalled fishing 5 to 14 days (34% in 2016/17 and 37% in 2017/18) or 15 days or more (38% in 2016/17 and 34% in 2017/18; Figure 10f); and most likely to recall fishing in the West Coast (86% in 2016/17 and 79% in 2017/18; Figure 10g).

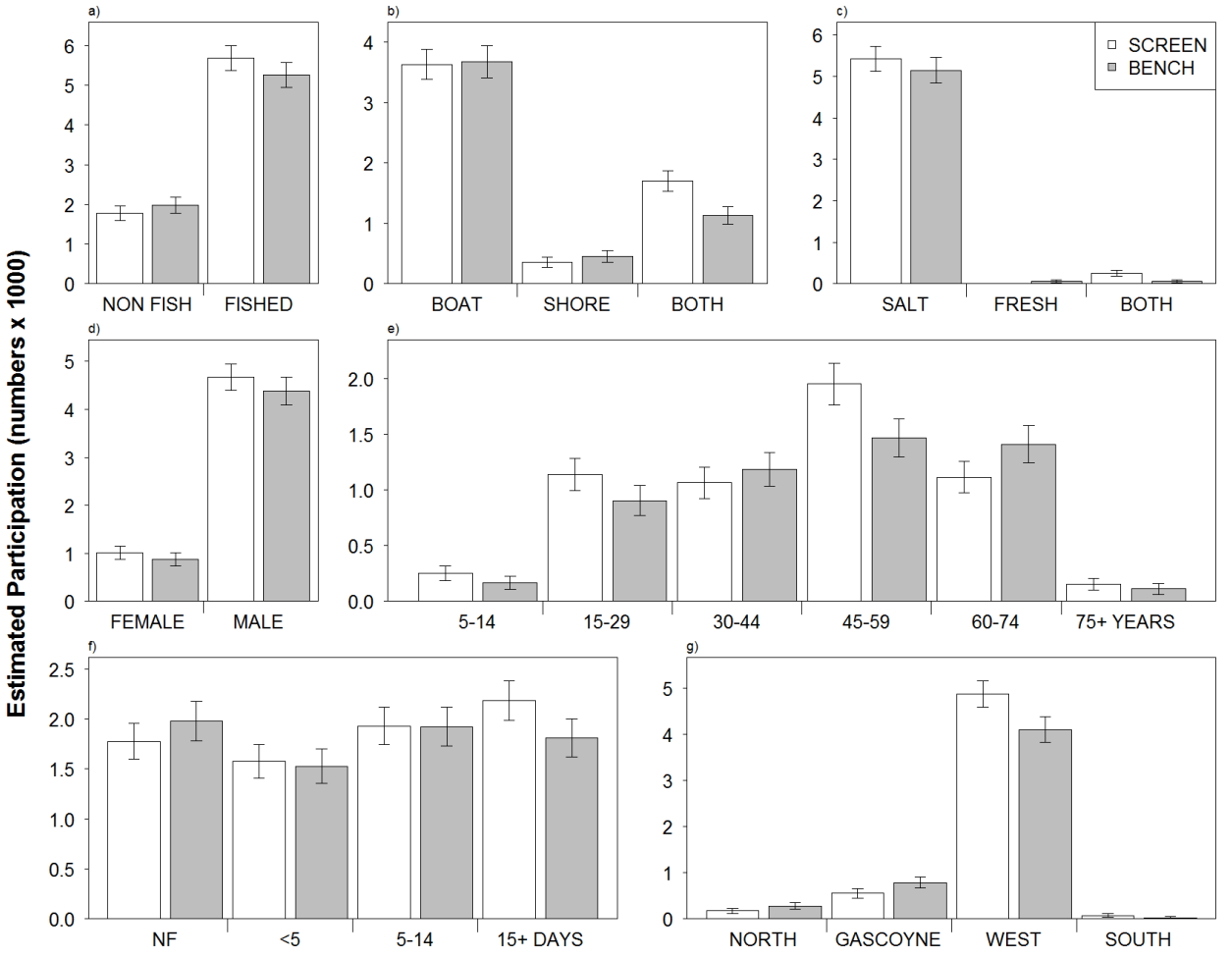


**Figure 10.** Estimated number of Mid West RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.6 Wheatbelt

A total of 5,803 residents in the Wheatbelt RDC held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 4,378 (75%) fishing at least once in 2016/17 (Figure 11a). A total of 5,800 residents held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 3,852 (66%) fishing at least once in 2017/18. Most fishers were male (79% in 2016/17 and 84% in 2017/18), and higher proportions of females fished (21% in 2016/17 and 16% in 2017/18; Figure 11d) compared with statewide estimates. Most RBFL holders were in the 30 to 44 age group (31% in 2017/18), or the 45 to 59-year age group (32% in 2016/17; Figure 11e). RBFL holders were equally likely to recall fishing less than 5 days (33% in 2016/17 and 2017/18) or 5 to 14 days (36% in 2016/17) or 15 days or more (34% in 2017/18; Figure 11f)., The majority of RBFL holders fished in the West Coast (64% in 2016/17 and 65% in 2017/18; Figure 11g).

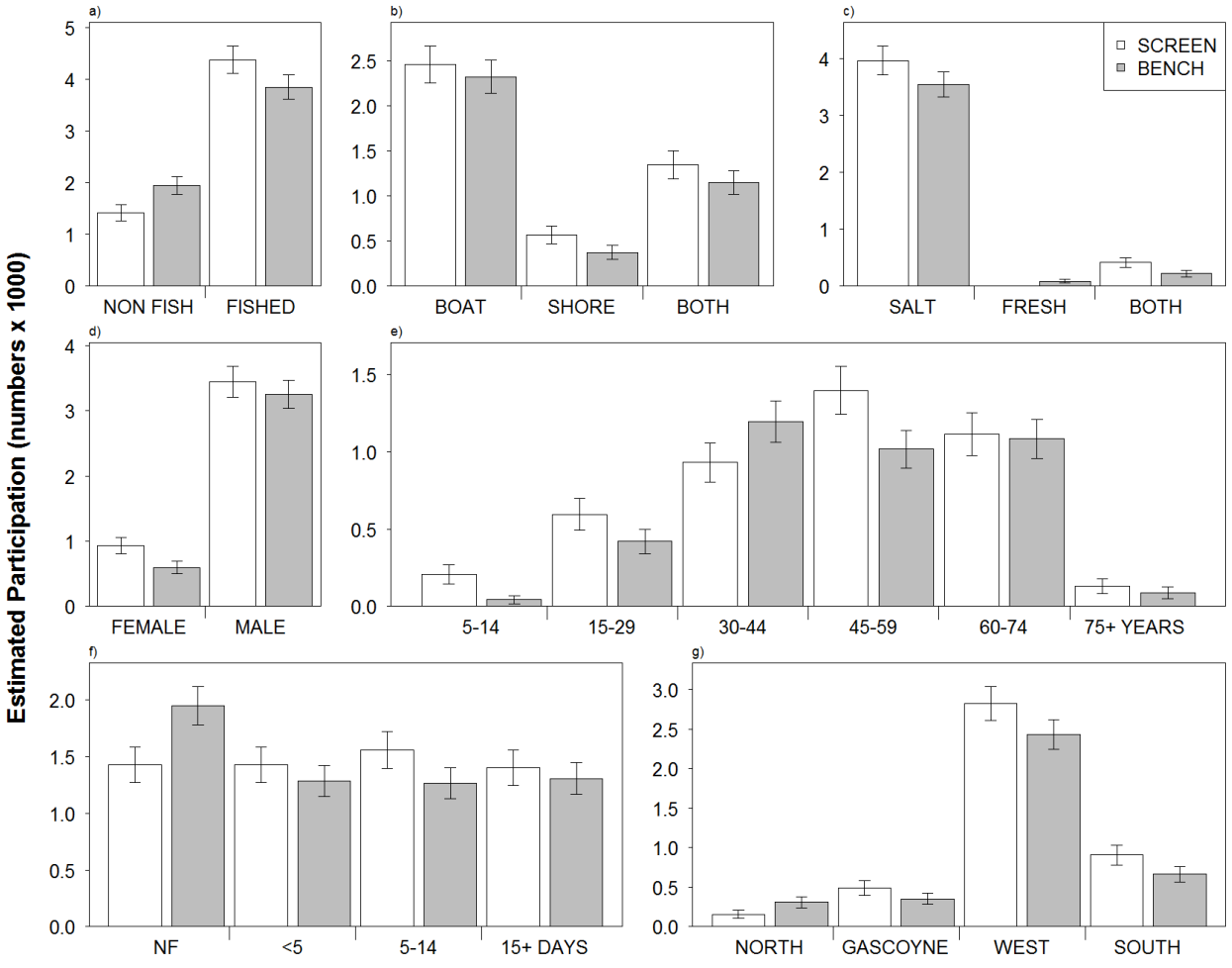


**Figure 11.** Estimated number of Wheatbelt RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.7 Perth Metropolitan

A total of 67,696 residents in Perth Metropolitan held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 51,723 (76%) fishing at least once in 2016/17 (Figure 12a). Similarly, 66,923 residents in Perth Metropolitan held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 51,353 (77%) fishing at least once in 2017/18. Males accounted for the majority of RBFL holders (90% in 2016/17 and 88% in 2017/18), and lower proportions of females participated in fishing (10% in 2016/17 and 12% in 2017/18, Figure 12d) consistent with statewide estimates. Most RBFL holders were in the 45 to 59-year age group (32% in 2016/17 and 31% in 2017/18; Figure 12e). RBFL holders were most likely to recall fishing 5 to 14 days (35% in 2016/17 and 39% in 2017/18) or 15 days or more (36% in 2016/17 and 34% in 2017/18; Figure 12f). RBFL holders were most likely to recall fishing in the West Coast (85% in 2016/17 and 77% in 2017/18; Figure 12g).

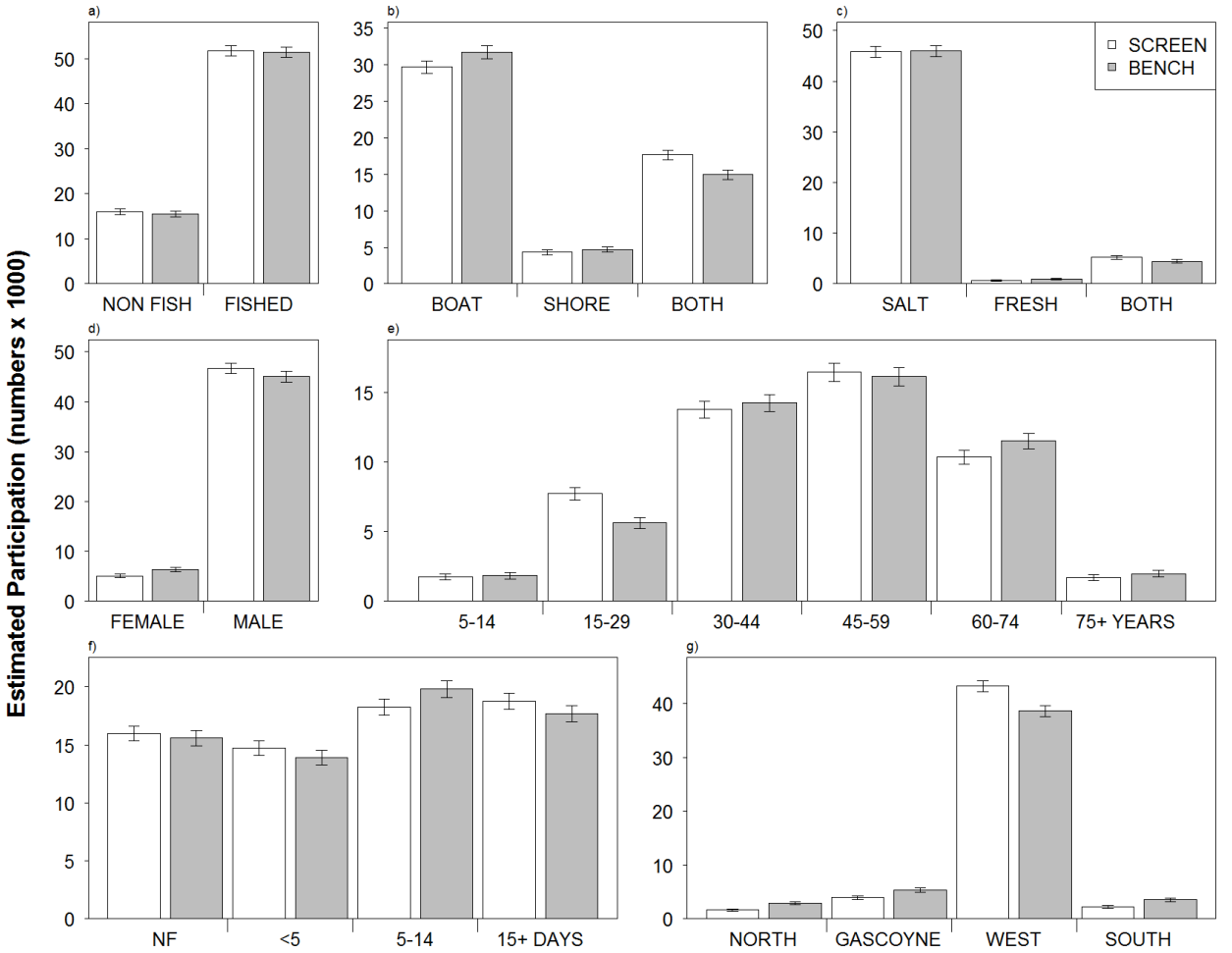


**Figure 12.** Estimated number of Perth Metropolitan residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.8 Peel

A total of 13,829 residents in the Peel RDC held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 10,920 (79%) fishing at least once in 2016/17 (Figure 13a). Similarly, 14,072 residents held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 10,395 (74%) fishing at least once in 2017/18. Most RBFL holders were male (84% in 2016/17 and 2017/18), and higher proportions of females participated in fishing (16% in 2016/17 and 2017/18; Figure 13d) compared with statewide estimates. Most RBFL holders were in the 45 to 59-year age group (30% in 2016/17 and 2017/18), followed by the 60 to 74-year age group (28% in 2016/17 and 31% in 2017/18; Figure 13e). RBFL holders were most likely to recall fishing 5 to 14 days (39% in 2016/17 and 2017/18; Figure 13f), and most likely to recall fishing in the West Coast (89% in 2016/17 and 73% in 2017/18; Figure 13g).

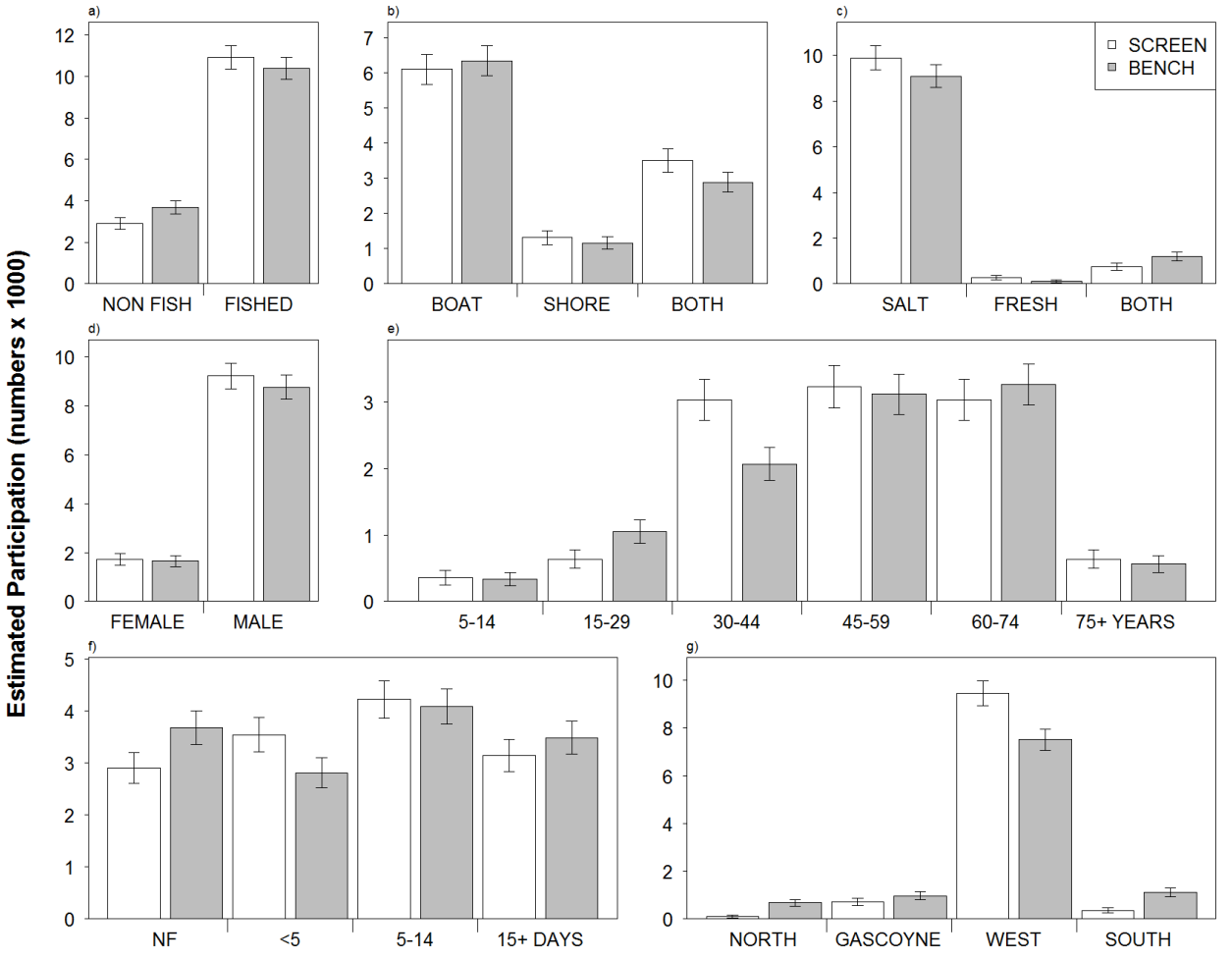


**Figure 13.** Estimated number of Peel RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.9 South West

A total of 18,075 residents in the South West RDC held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 14,769 (82%) fishing at least once in 2016/17 (Figure 14a). A total of 18,294 residents held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 13,552 (74%) fishing at least once in 2017/18. Males accounted for the majority of RBFL holders (85% in 2016/17 and 86% in 2017/18), and higher proportions of females participated in fishing (15% in 2016/17 and 14% in 2017/18; Figure 14d) compared with statewide estimates. Most RBFL holders were in the 45 to 59-year age group (31% in 2016/17 and 28% in 2017/18; Figure 14e). RBFL holders were most likely to recall fishing 5 to 14 days (38% in 2016/17 and 37% in 2017/18) or 15 days or more (32% in 2016/17 and 42% in 2017/18; Figure 14f), and fished in the West Coast (57% in 2016/17 and 54% in 2017/18), followed by the South Coast (31% in 2016/17 and 27% in 2017/18; Figure 14g).

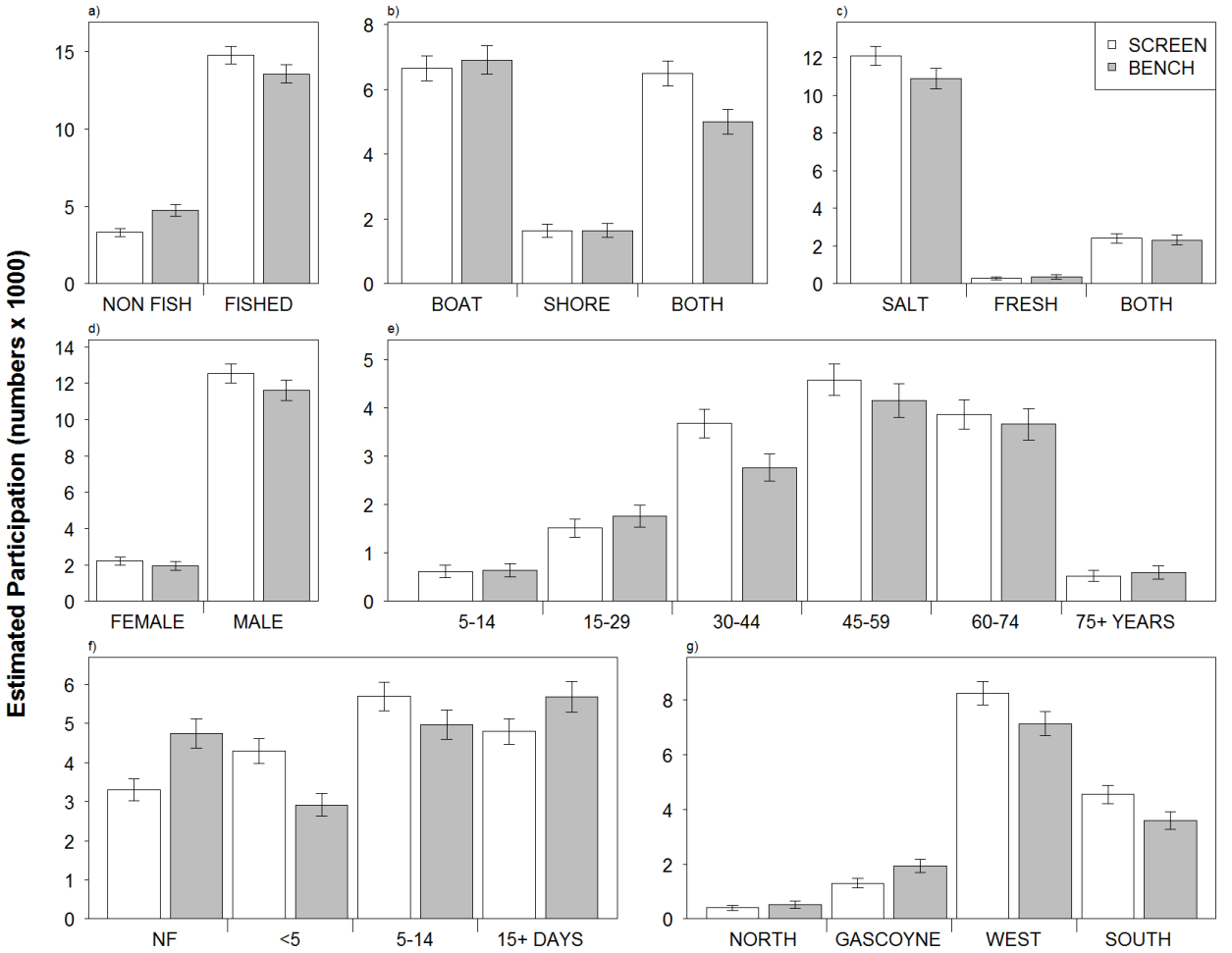


**Figure 14.** Estimated number of South West RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.10 Great Southern

A total of 5,653 residents in the Great Southern RDC held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 4,707 (83%) fishing at least once in 2016/17 (Figure 15a). A total of 5,601 residents held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 4,071 (73%) fishing at least once in 2017/18. Males accounted for the majority of RBFL holders (88% in 2016/17 and 2017/18), and lower proportions of females participated in fishing (12% in 2016/17 and 2017/18; Figure 15d) consistent with statewide estimates. Most RBFL holders were in the 45 to 59-year age group (26% in 2016/17 and 30% in 2017/18; Figure 15e). RBFL holders were most likely to recall fishing 5 to 14 days (36% in 2016/17 and 48% in 2017/18) or 15 days or more (37% in 2016/17 and 31% in 2017/18; Figure 15f), and most likely to recall fishing in the South Coast (88% in 2016/17 and 2017/18; Figure 15g).

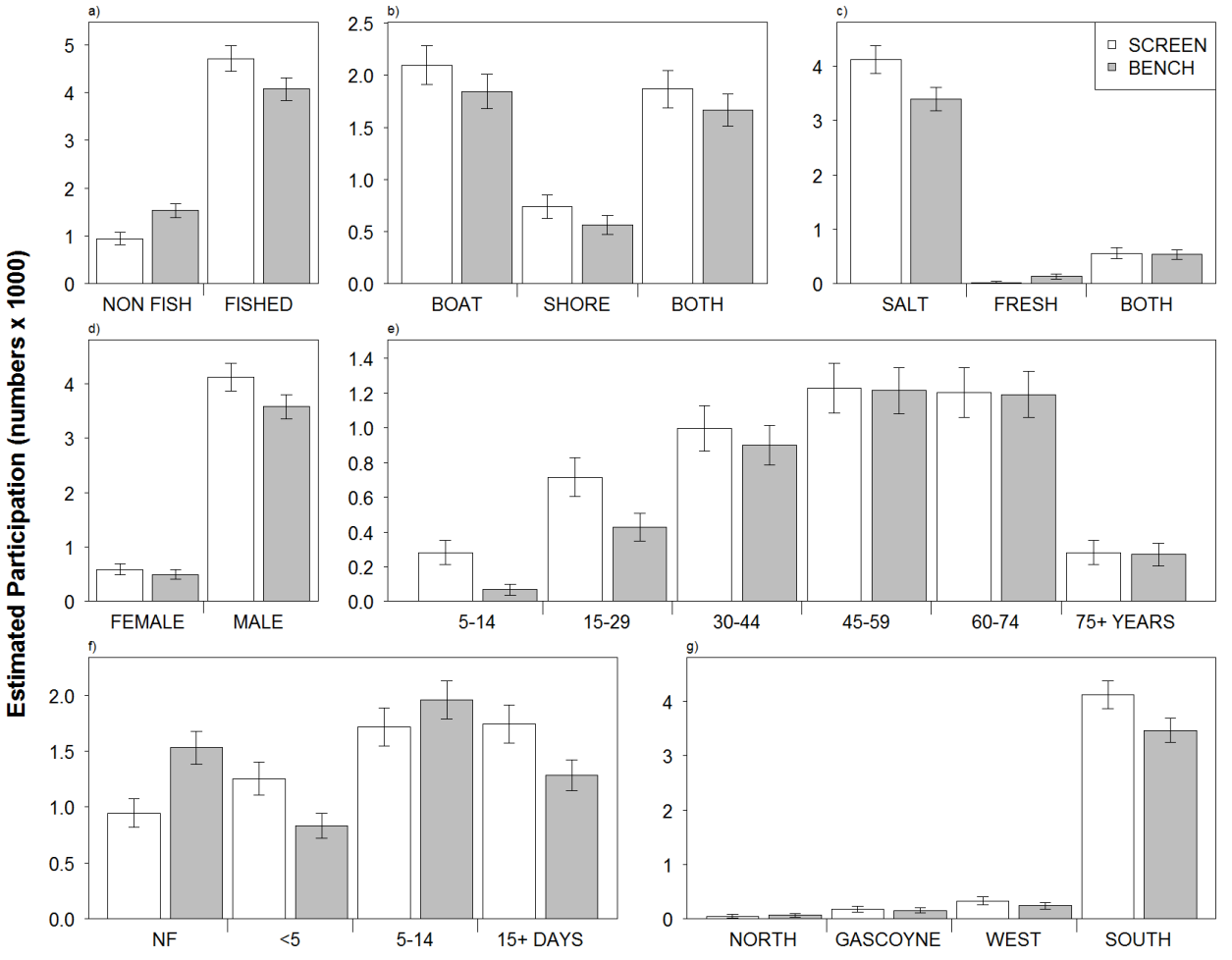


**Figure 15.** Estimated number of Great Southern RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.11 Goldfields-Esperance

A total of 2,402 residents in the Goldfields-Esperance RDC held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 1,920 (80%) fishing at least once in 2016/17 (Figure 16a). A total of 2,342 residents held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 1,684 (72%) fishing at least once in 2017/18. Males accounted for the majority of RBFL holders (87% in 2016/17 and 93% in 2017/18), and lower proportions of females participated in fishing (13% in 2016/17 and 7% in 2017/18; Figure 16d) compared with statewide estimates. Most RBFL holders were in the 45 to 59-year age group (42% in 2016/17 and 37% in 2017/18; Figure 16e). RBFL holders were most likely to recall fishing less than 5 days (37% in 2016/17 and 36% in 2017/18) or 5 to 14 days (31% in 2016/17 and 44% in 2017/18; Figure 16f). RBFL holders were most likely to recall fishing in the South Coast (91% in 2016/17 and 82% in 2017/18; Figure 16g).

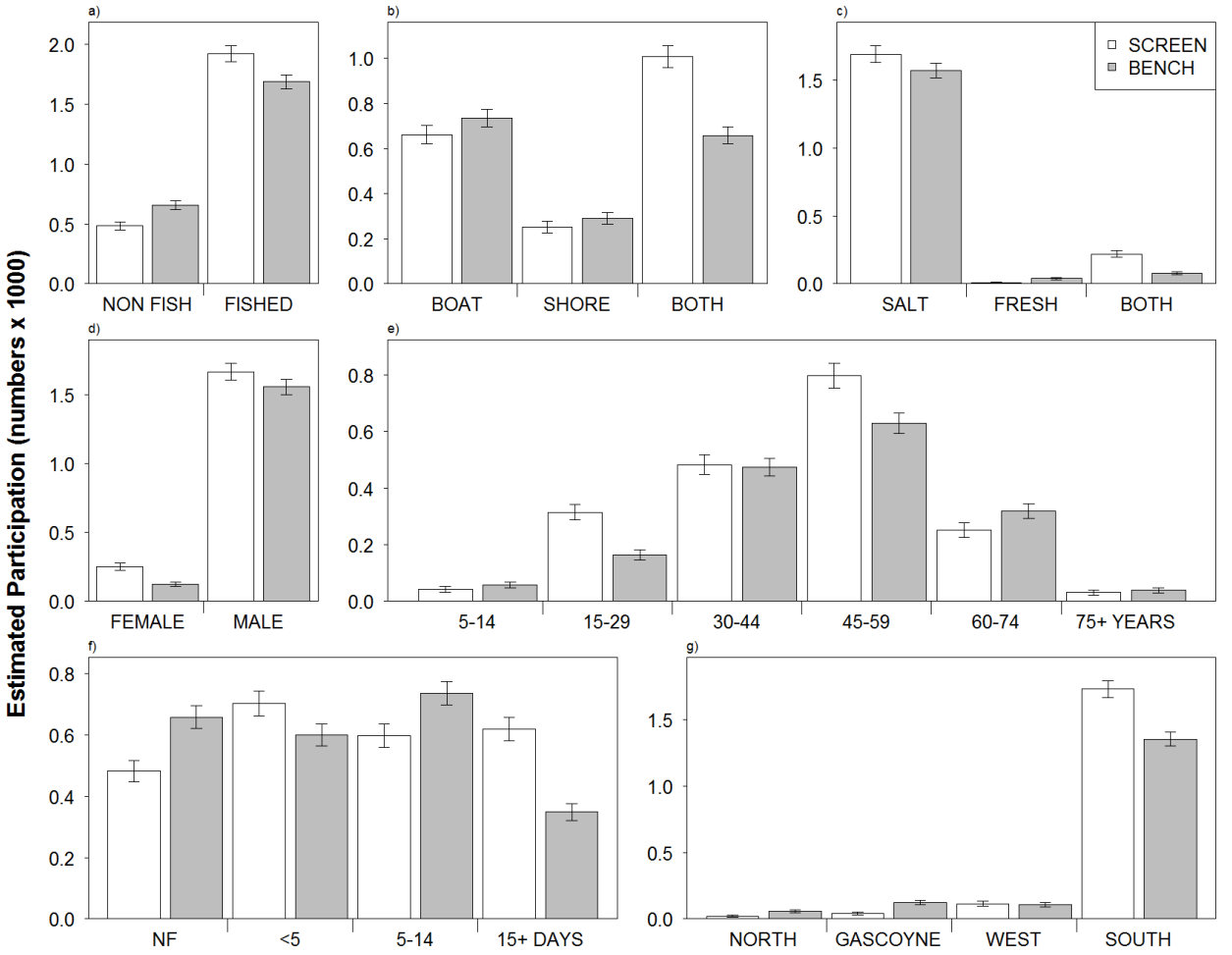


**Figure 16.** Estimated number of Goldfields-Esperance RDC residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

## 3.12 Interstate

A total of 3,360 interstate visitors held a RBFL in the 12 months prior to September 2017 (Figure 4), with an estimated 2,353 (70%) fishing at least once in 2016/17 (Figure 17a). Similarly, 3,304 interstate visitors held a RBFL in the 12 months prior to September 2018 (Figure 5), with an estimated 2,233 (68%) fishing at least once in 2017/18. Males accounted for the majority of RBFL holders in 2016/17 and 2017/18 (83% and 91% respectively), and lower proportions of females participated in fishing in 2016/17 and 2017/18 (17% and 9% respectively; Figure 17d) compared with statewide estimates. Most RBFL holders were in the 60 to 74-year age group (40% in 2016/17 and 45% in 2017/18; Figure 17e). RBFL holders were most likely to recall fishing 5 to 14 days (42% in 2016/17 and 36% in 2017/18) or less than 5 days (38% in 2016/17 and 36% in 2017/18; Figure 17f), and most likely to recall fishing in the North Coast (46% in 2016/17 and 47% in 2017/18), followed by the Gascoyne Coast (25% in 2016/17 and 29% in 2017/18; Figure 17g).

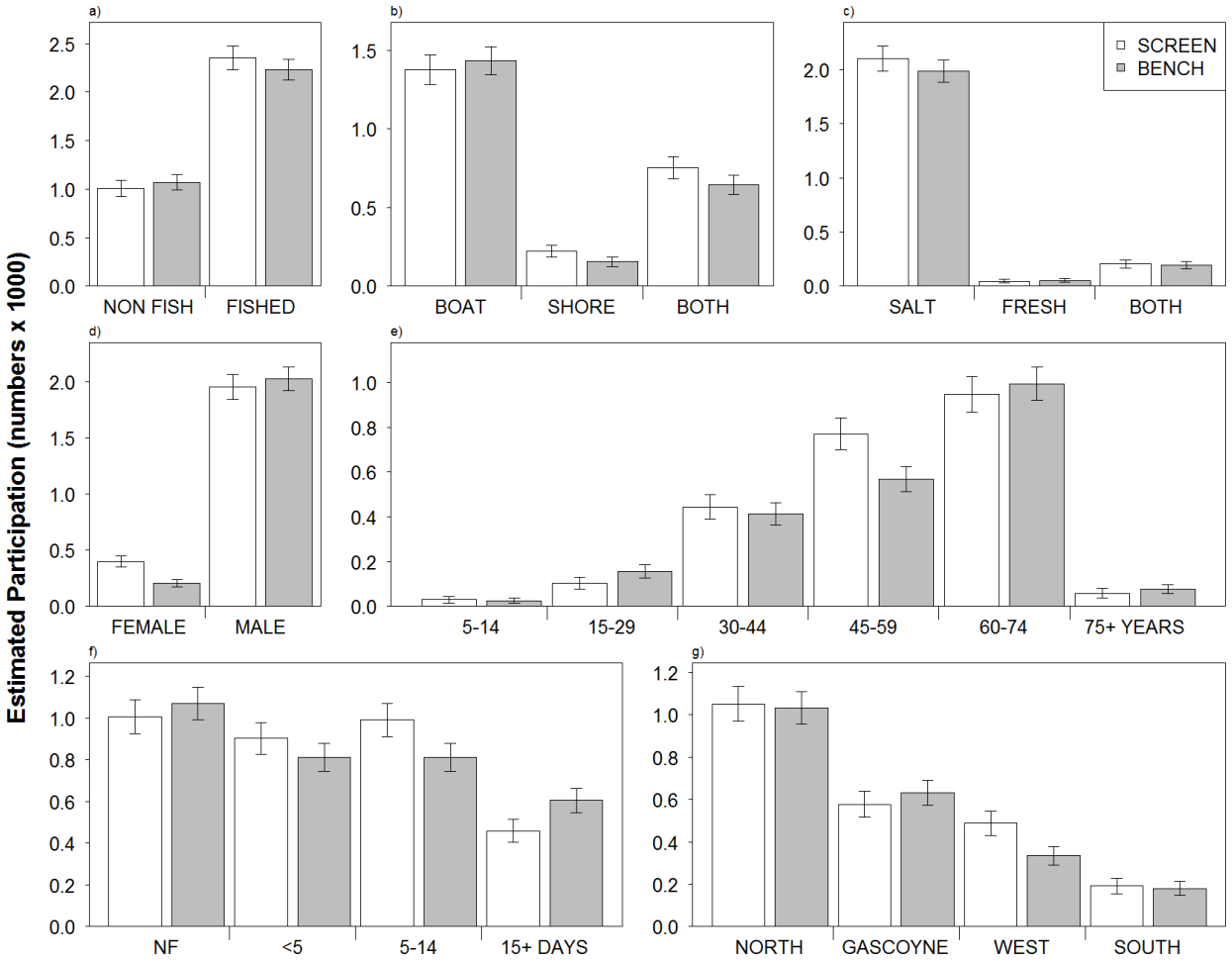


**Figure 17.** Estimated number of interstate residents (RBFL holders aged five years and older) who fished recreationally in the 12-months prior to September 2017 (white bars) and September 2018 (grey bars); a) non-fishers and fishers; b) boat-based and both (including shore-based); c) marine and freshwater; d) gender; e) age (years); f) avidity (days fished per year); and g) bioregion fished.

# 4 Fishing Effort

This section presents estimates of effort from boat-based recreational fishing for the 12-months from September 2017 to August 2018. Estimates are summarised for the state (Figure 18) and for each bioregion: North Coast (Figure 19), Gascoyne Coast (Figure 20), West Coast (Figure 21) and South Coast (Figure 22), by habitat, fishing method and month.

Estimates of effort are measured in boat days (separate days in which fishing occurred on a 'boat party' basis, regardless of the number of fishers or RBFL holders on board) and number of fishing events, which accounts for multiple events during a boat day (i.e. where the fishing method or location fished changed during the boat day).

Boat-based recreational fishing effort for the 12-months from September 2017 to August 2018 was estimated to be 408,105 boat days, with 433,515 separate fishing events (Table 3). Fishers undertook an average of 1.06 events per fisher day statewide. The estimated total time spent boat-based recreational fishing was 1,159,489 hours.

Statewide effort increased in 2017/18 with approximately three quarters of the statewide estimated total effort (in boat days, fishing events and hours fished) reported from the West Coast. The estimated boat-based recreational fishing effort in 2017/18 was higher in the West Coast compared with 2015/16 and 2013/14, but was similar to estimated effort in 2011/12 (Table 3). Estimated boat-based recreational fishing effort in 2017/18 in the North Coast, Gascoyne Coast and South Coast was similar to estimated effort in 2015/16, but lower than 2013/14 and 2011/12 (Table 3).

**Table 3.** Annual fishing effort, expressed as boat days and fishing events, for boat-based recreational fishing in Western Australia during 2011/12, 2013/14, 2015/16 and 2017/18 (se=standard error).

| Bioregion | Boat Days | se | Fishing Events | se | Hours Fished | se |
|---|---|---|---|---|---|---|
| **2011/12** | | | | | | |
| North Coast | 47,721 | 3,778 | 51,175 | 4,306 | 187,112 | 14,105 |
| Gascoyne Coast | 58,123 | 3,672 | 61,616 | 3,895 | 253,930 | 17,245 |
| West Coast | 293,112 | 10,688 | 317,543 | 11,972 | 820,693 | 31,111 |
| South Coast | 40,073 | 3,354 | 41,897 | 3,556 | 136,771 | 12,505 |
| **Statewide Total** | **439,029** | **11,160** | **472,232** | **12,521** | **1,400,150** | **41,700** |
| **2013/14** | | | | | | |
| North Coast | 45,604 | 3,603 | 47,836 | 3,757 | 188,744 | 15,536 |
| Gascoyne Coast | 53,832 | 3,603 | 56,334 | 3,849 | 211,967 | 15,671 |
| West Coast | 249,719 | 10,563 | 267,664 | 11,561 | 716,722 | 31,145 |
| South Coast | 28,277 | 2,323 | 29,831 | 2,497 | 91,640 | 7,447 |
| **Statewide Total** | **383,107** | **12,385** | **401,730** | **13,197** | **1,209,263** | **40,279** |
| **2015/16** | | | | | | |
| North Coast | 31,375 | 2,414 | 33,046 | 2,520 | 122,192 | 9,748 |
| Gascoyne Coast | 43,237 | 3,152 | 44,407 | 3,234 | 169,312 | 12,914 |
| West Coast | 271,311 | 11,032 | 285,157 | 11,672 | 740,815 | 28,047 |
| South Coast | 24,444 | 2,042 | 25,097 | 2,100 | 80,260 | 6,762 |
| **Statewide Total** | **370,368** | **11,567** | **387,707** | **12,191** | **1,112,579** | **32,731** |
| **2017/18** | | | | | | |
| North Coast | 32,964 | 2,574 | 34,164 | 2,661 | 130,060 | 10,616 |
| Gascoyne Coast | 42,186 | 3,078 | 43,905 | 3,205 | 176,685 | 13,674 |
| West Coast | 311,495 | 12,127 | 332,984 | 13,087 | 772,470 | 28,204 |
| South Coast | 21,460 | 1,680 | 22,463 | 1,754 | 80,274 | 7,244 |
| **Statewide Total** | **408,105** | **12,573** | **433,515** | **13,533** | **1,159,489** | **34,155** |

## 4.1 Statewide

At a statewide level, most boat-based recreational fishing effort (boat days) during 2017/18 occurred in the West Coast (76%), with lower proportions in the North Coast (8%), Gascoyne Coast (10%) and South Coast (6%; Figure 18b). Most boat-based recreational fishing effort occurred in nearshore habitat (57%), followed by inshore demersal (27%) and estuary (11%), with lower proportions in pelagic (2%), offshore demersal (2%) and freshwater (1%; Figure 18a). Most boat-based recreational fishing effort was attributed to line fishing (61%) and pots (33%), with lower proportions from diving (5%), nets (1%) and other (<1%; Figure 18c). Most boat-based recreational fishing effort occurred during summer (36%) and autumn (28%), with effort highest in December 2017 (16%) and lowest in September 2017 and August 2018 (4%; Figure 18d). Estimated effort in December 2017 was higher than the 3-year average from previous statewide surveys, as was effort for potting, and fishing in inshore demersal and nearshore habitats.

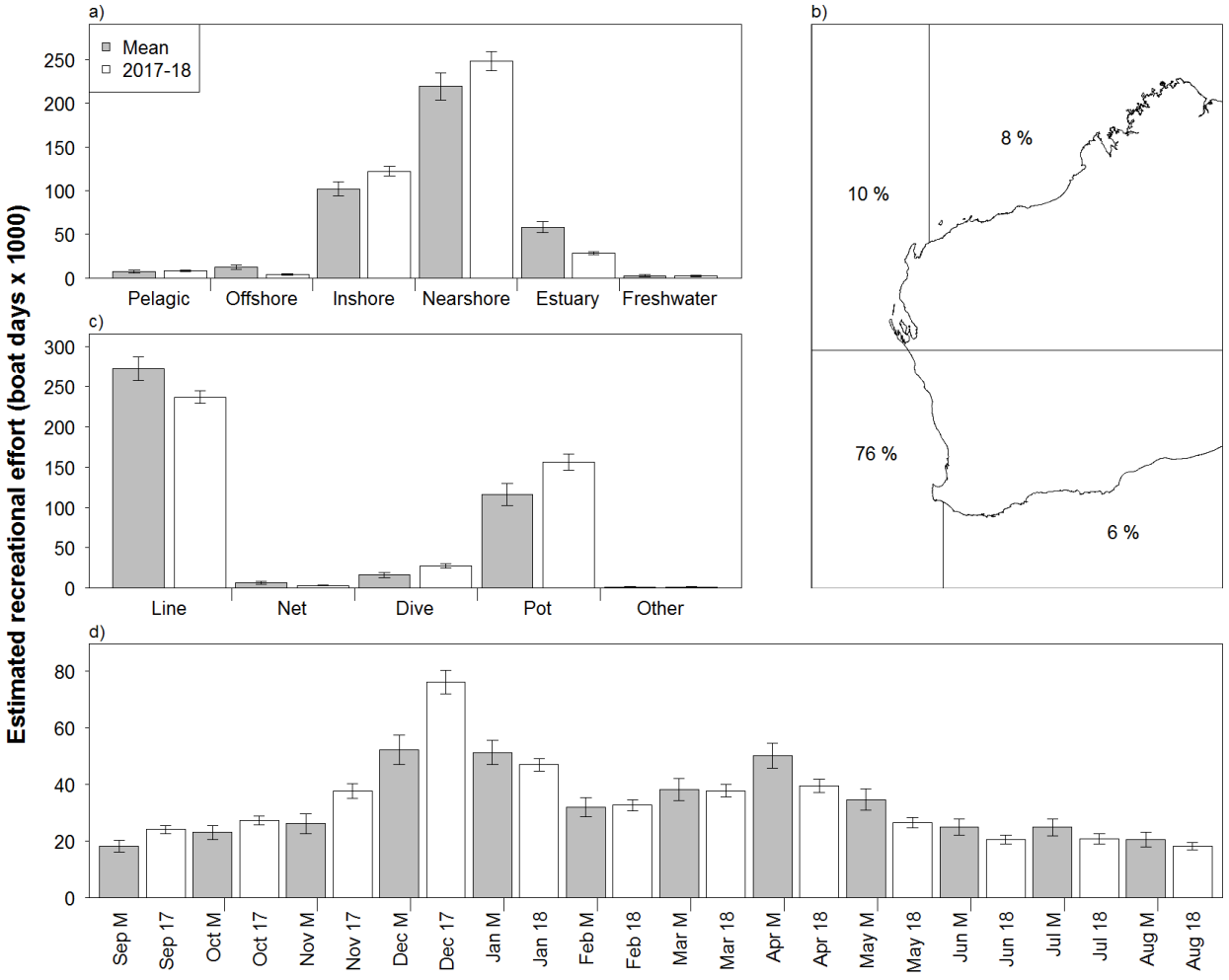


**Figure 18.** Boat-based recreational fishing effort (boat days x 1000 ± standard errors) in Western Australia during 2017/18 (white bars) compared with the mean from the 3 previous surveys (grey bars); a) effort by habitat; b) map of the proportion (%, 17/18 only) of the effort by fishing bioregion; c) effort by fishing method; and d) effort by month.

## 4.2 North Coast

The majority of boat-based recreational fishing effort (boat days) during September 2017 to August 2018 in the North Coast occurred in nearshore habitat (47%), followed by inshore demersal (33%) and estuary (11%), with lower proportions of fishing effort in pelagic (5%), offshore demersal (2%) and freshwater (2%; Figure 19a). The majority of boat-based recreational fishing effort was attributed to line fishing (86%), with lower proportions of fishing effort from pots (8%), diving (5%), nets (<1%) and other (<1%; Figure 19b). The majority of boat-based recreational fishing effort occurred during winter (40%), followed by autumn (26%), spring (22%) and summer (12%). In 2017/18, fishing effort was highest in July 2018 (17%) and lowest for December 2017 through to February 2018 (4%; Figure 19c). Estimated boat-based recreational fishing effort was lower in the North Coast in 2017/18 compared with the 3-year average from the previous statewide surveys, notably for line fishing, nearshore and estuary habitats, and from April to August.

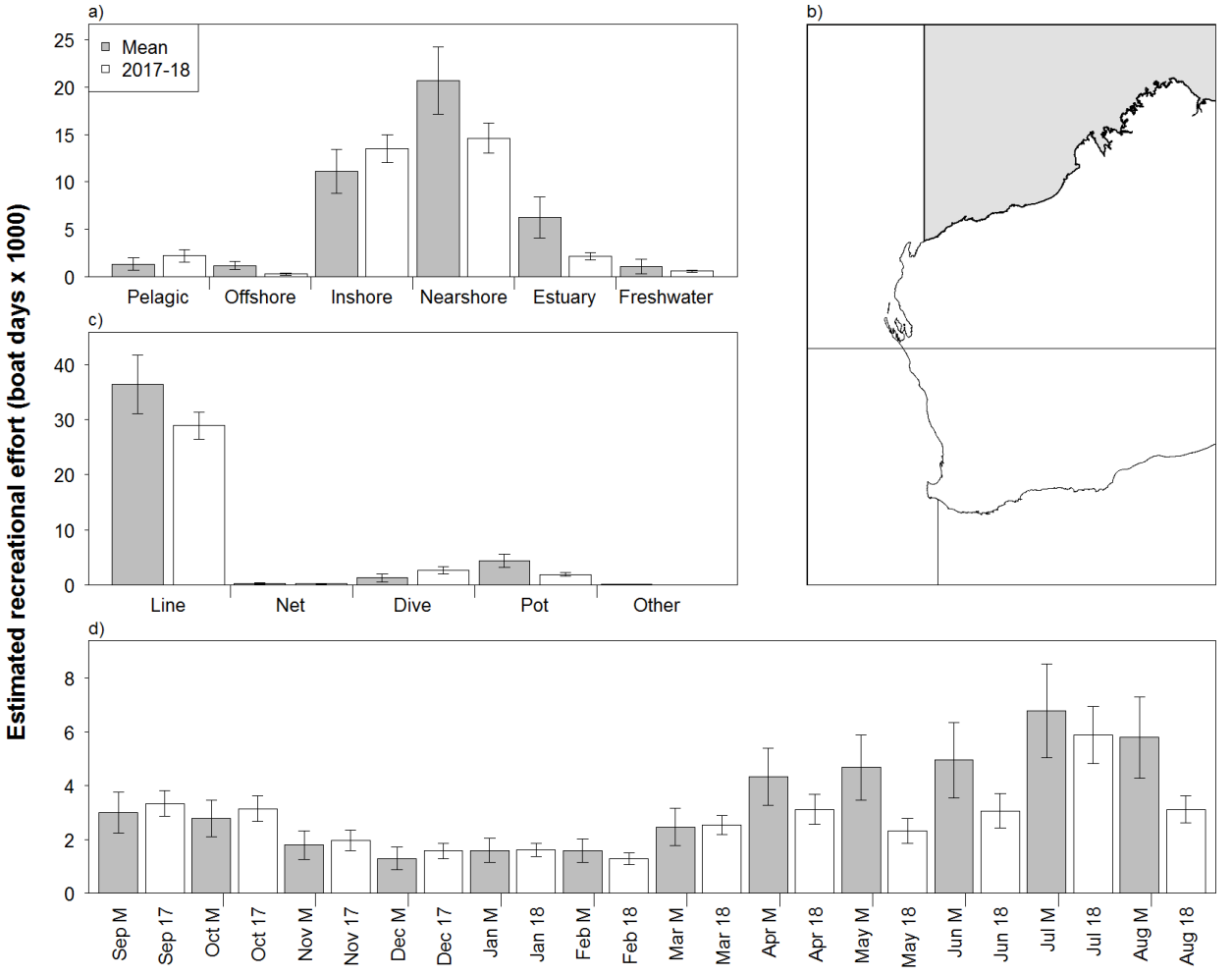


**Figure 19.** Boat-based recreational fishing effort (boat days x 1000 ± standard errors) in the North Coast during 2017/18 (white bars) compared with the mean from the 3 previous surveys (grey bars); a) effort by habitat; b) map of the bioregion; c) effort by fishing method; and d) effort by month.

## 4.3 Gascoyne Coast

The majority of boat-based recreational fishing effort (boat days) during September 2017 to August 2018 in the Gascoyne Coast occurred in nearshore (46%) and inshore demersal (44%) habitats, with lower proportions of fishing effort in pelagic (5%), offshore demersal (4%) and estuary (1%; Figure 20a). The majority of boat-based recreational fishing effort was attributed to line fishing (91%), with lower proportions of fishing effort from diving (4%), pots (4%), nets (1%; Figure 20b). The majority of boat-based recreational fishing effort occurred during autumn (38%) and winter (40%) and was lowest in spring (14%) and summer (8%). In 2017/18, fishing effort was highest in July 2018 (18%) and lowest in November 2017 and February 2018 (2%; Figure 20c). Estimated boat-based recreational fishing effort was lower in the Gascoyne Coast in 2017/18 compared with the 3-year average from the previous statewide surveys, notably for line fishing, nearshore and offshore habitat, from April to August.

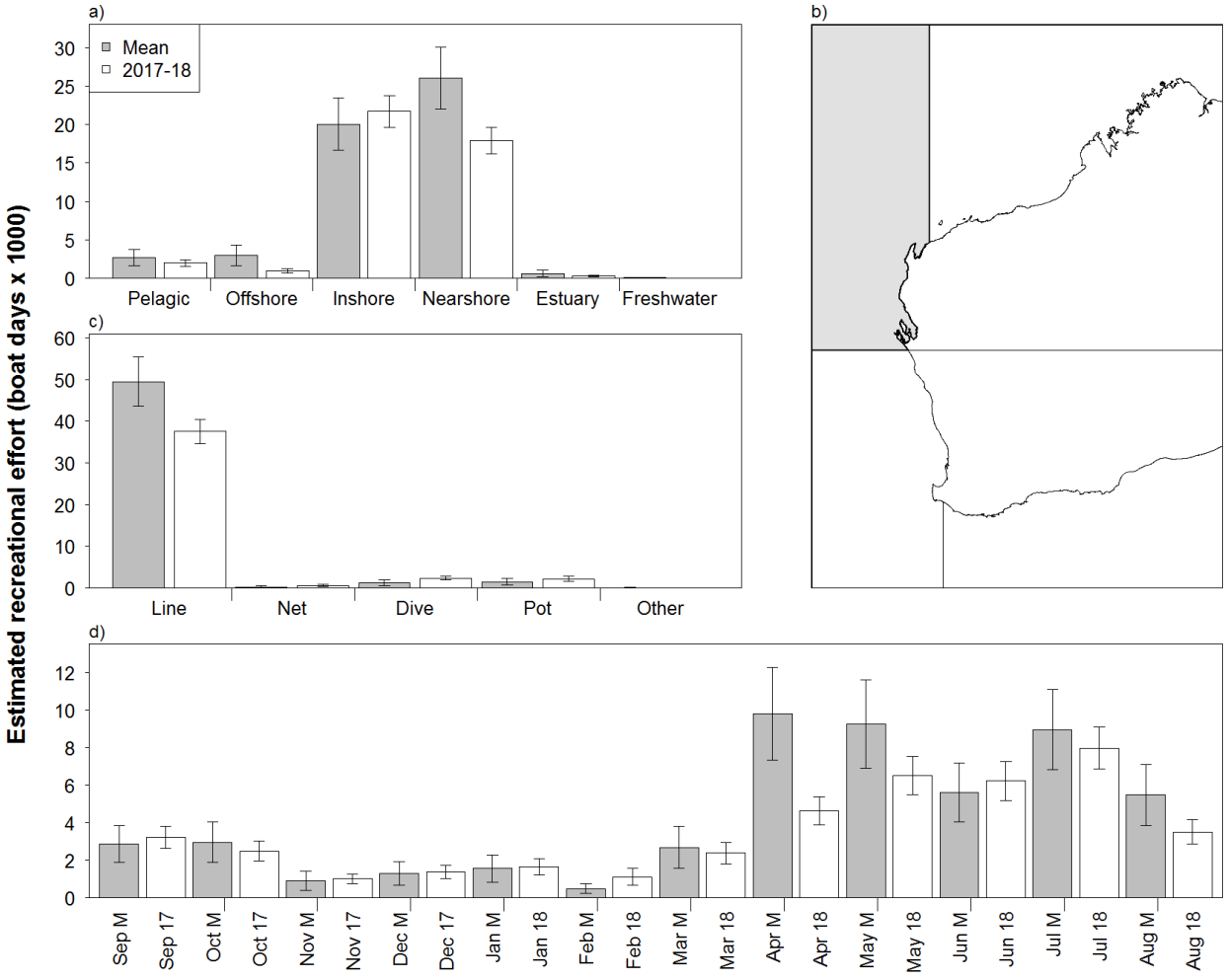


**Figure 20.** Boat-based recreational fishing effort (boat days x 1000 ± standard errors) in the Gascoyne Coast during 2017/18 (white bars) compared with the mean from the 3 previous surveys (grey bars); a) effort by habitat; b) map of the bioregion; c) effort by fishing method; and d) effort by month.

## 4.4 West Coast

The majority of boat-based recreational fishing effort (boat days) during September 2017 to August 2018 in the West Coast occurred in nearshore habitat (61%), followed by inshore demersal (24%) and estuary (12%), with lower proportions of fishing effort in offshore demersal (2%), pelagic (1%) and freshwater (<1%; Figure 21a). The majority of boat-based recreational fishing effort was attributed to line fishing (50%) and pots (43%), with lower proportions of fishing effort from diving (6%) and nets (1%; Figure 21b). The majority of boat-based recreational fishing effort occurred during summer (44%), autumn (27%) and spring (20%) and was lowest in winter (9%). In 2017/18, fishing effort was highest in December 2017 (20%) and lowest in July 2018 (2%; Figure 21c). Estimated boat-based recreational fishing effort in the West Coast in 2017/18 was generally consistent with the 3-year average from the previous statewide surveys, with higher effort for potting, nearshore habitat, and from November to December.

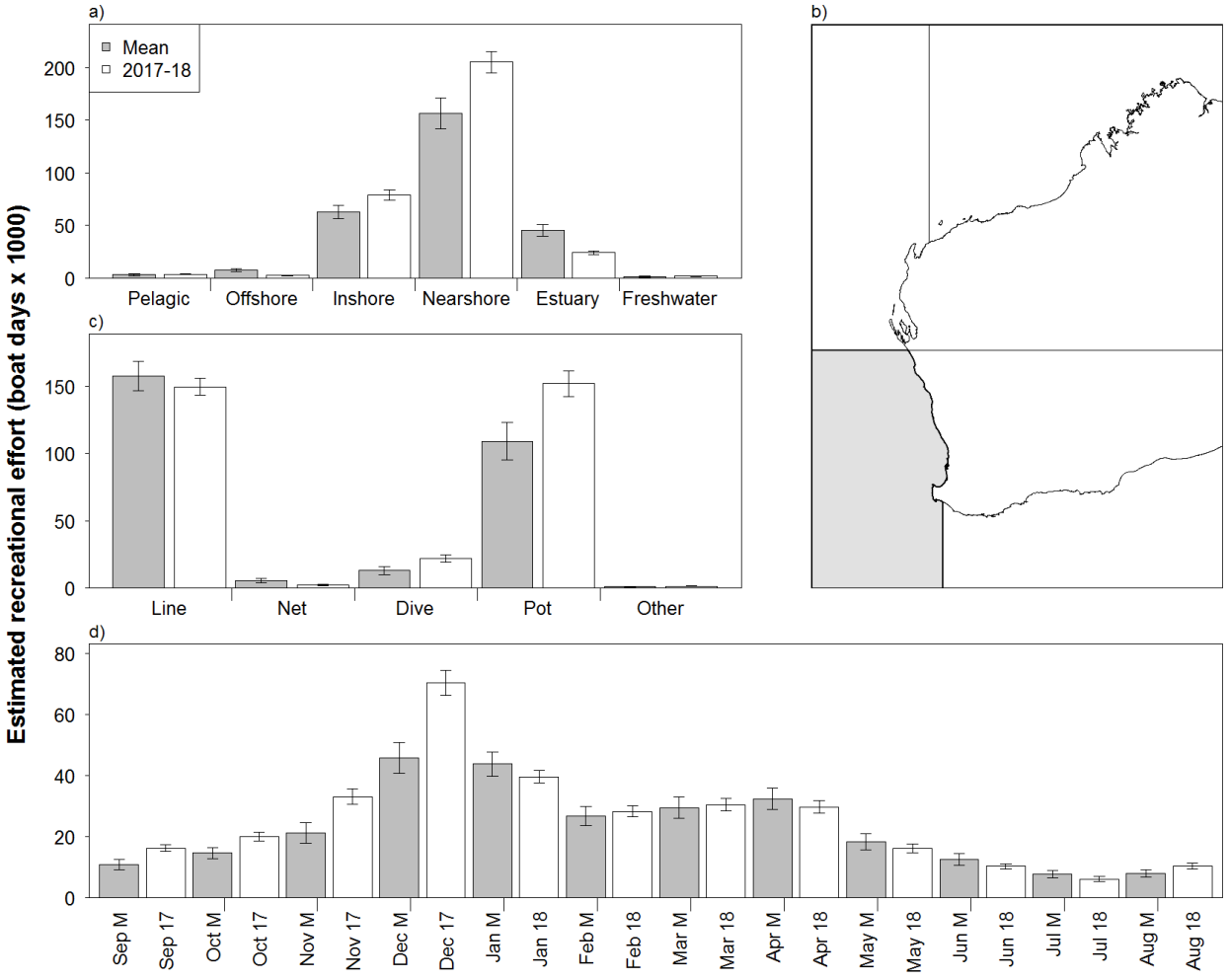


**Figure 21.** Boat-based recreational fishing effort (boat days x 1000 ± standard errors) in the West Coast during 2017/18 (white bars) compared with the mean from the 3 previous surveys (grey bars); a) effort by habitat; b) map of the bioregion; c) effort by fishing method; and d) effort by month.

## 4.5 South Coast

The majority of boat-based recreational fishing effort (boat days) during September 2017 to August 2018 in the South Coast occurred in nearshore habitat (50%), followed by inshore demersal (30%) and estuary (15%), with lower proportions of fishing effort in offshore demersal (3%), freshwater (1%) and pelagic (1%; Figure 22a). The majority of boat-based recreational fishing effort was attributed to line fishing (94%), with lower proportions of fishing effort from pots (3%), diving (2%) and nets (1%; Figure 22b). The majority of boat-based recreational fishing effort occurred during summer (37%), followed by autumn (29%) and spring (20%) and was lowest in winter (14%). In 2017/18, fishing effort was highest in January 2018 (16%) and lowest in July and August 2018 (4%; Figure 22c). Estimated effort was lower in the South Coast in 2017/18 compared with the 3-year average from the previous statewide surveys, notably for line fishing, nearshore and estuary habitats.

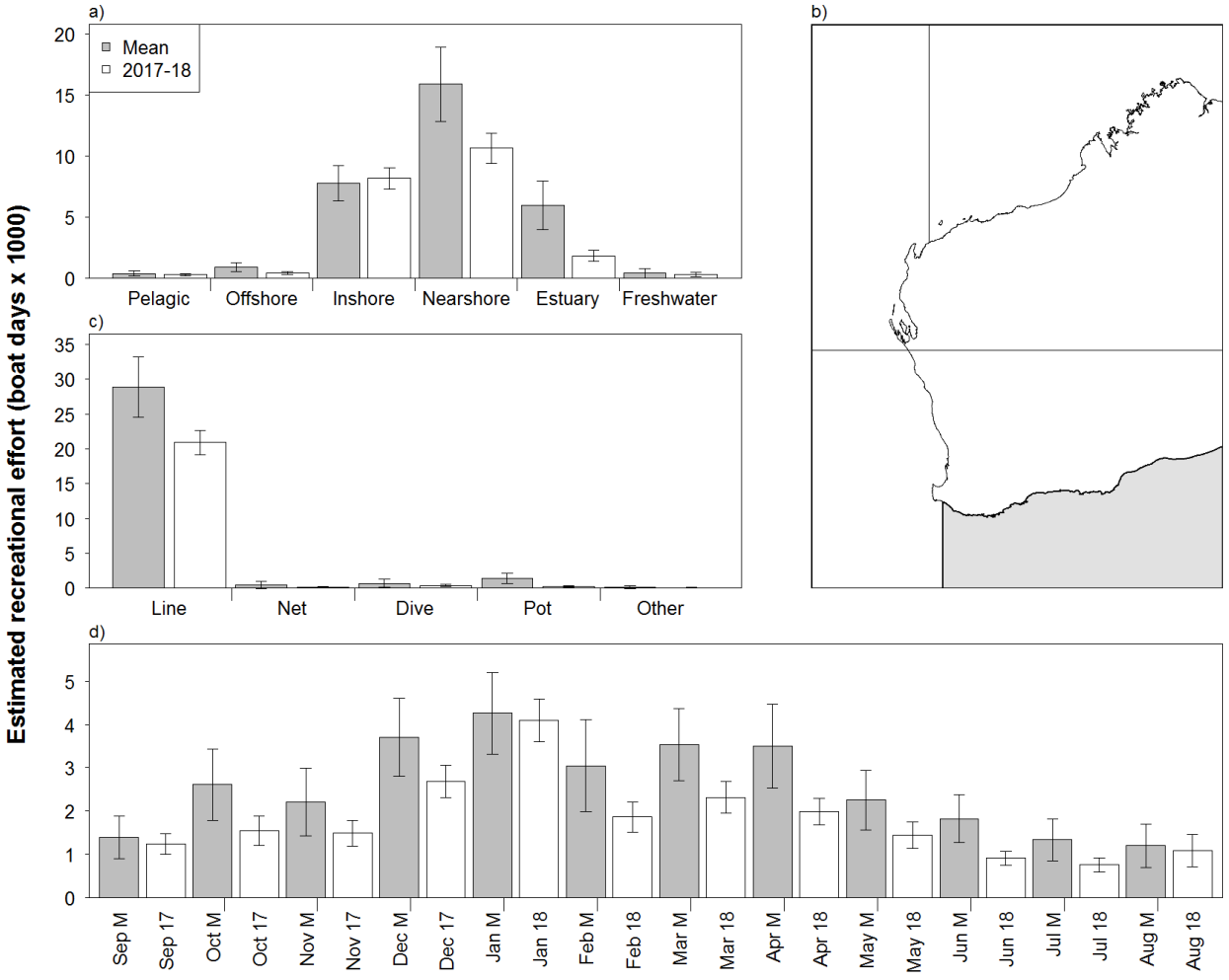


**Figure 22.** Boat-based recreational fishing effort (boat days x 1000 ± standard errors) in the South Coast during 2017/18 (white bars) compared with the mean from the 3 previous surveys (grey bars); a) effort by habitat; b) map of the bioregion; c) effort by fishing method; and d) effort by month.

# 5 Statewide Estimates of Recreational Catch

This section presents estimates of boat-based recreational catch for the 12-months from September 2017 to August 2018. Estimates presented for all species include: annual catch (total, kept and released, by number), proportions released (% released) and reasons for release.

## 5.1 Annual Catch (Total, Kept and Released Numbers)

The estimated annual catch (total, kept and released numbers) and proportion released for the 12-months from September 2017 to August 2018 is given in Table 4. A diverse range of species/taxa were caught, including scalefish (186 species/taxa), elasmobranchs (18), crustaceans (seven) and molluscs (five). A total of 2.82 million individual species/taxa were caught. A similar proportion of the catch was either kept (approx. 1.52 million or 54%) or released (approx. 1.30 million or 46%). Approximately 47% of the recreational catch comprised finfish (1.32 million) in comparison to invertebrates (1.50 million or 53%). A similar proportion of finfish (49%) and invertebrates (44%) were released.

School Whiting (*Sillago bassensis*, *S. vittata* and *S. schomburgkii*) were the most commonly caught finfish species statewide with (259,359 kept or released statewide by number, or 19% of the finfish catch), followed by Australian Herring (*Arripis georgianus*; 119,545 or 9%), Pink Snapper (*Chrysophrys auratus*; 116,091 or 9%), West Australian Dhufish (*Glaucosoma hebraicum*; 67,842 or 5%), King George Whiting (*Sillaginodes punctata*; 52,649 or 4%), Silver Trevally (*Pseudocaranx* spp. complex; 45,913 or 3%), Grass Emperor (*Lethrinus laticaudis*; 36,996 or 3%), Western King Wrasse (*Coris auricularis*; 35,413 or 3%), Black Bream (*Acanthopagrus butcheri*; 31,599 or 2%), Brownspotted Wrasse (*Notolabrus parilus*; 26,084 or 2%), Baldchin Groper (*Choerodon rubescens*; 25,669 or 2%) and Breaksea Cod (*Epinephelides armatus;* 25,471 or 2%).

High release rates were observed for many of these species, including Brownspotted Wrasse (85%), Western King Wrasse (85%), Black Bream (80%), Pink Snapper (73%), Grass Emperor (63%) and West Australian Dhufish (59%). Release rates were lower for Silver Trevally (44%), Breaksea Cod (38%), Baldchin Groper (35%), School Whiting (24%), Australian Herring (21%) and King George Whiting (20%).

Western Rock Lobster (*Panulirus cygnus*) was the most commonly caught invertebrate species (695,433 kept or released statewide by number, or 47% of the invertebrate catch), followed by Blue Swimmer Crab (*Portunus armatus*; 666,526 or 45%) and Squid (Order Teuthoidea; 88,519 or 6%). High release rates were observed for Blue Swimmer Crab (58%) compared with Western Rock Lobster (35%) and Squid (3%).

## 5.2 Release Rates

A summary of release rates for species released by fishers during 2017/18 by RBFL holders aged five years or older is given Table 5. Lowest release rates were observed for Octopus (16%), Blue Morwong (17%), Yellowfin Whiting (17%), Robinson's Seabream (19%), Harlequin Fish (19%),

King George Whiting (20%), Australian Herring (21%), Western Blue Groper (23%) and School Whiting (24%).

Highest release rates were observed for Gurnard (90%), Yellowtail Flathead (91%), Bighead Gurnard Perch (94%), Western Blue Devil (94%), Sea Trumpeter (94%), Weeping Toadfish (95%), Western Striped Grunter (95%), Dusky Whaler (96%), Giant Sea Catfish (99%), Port Jackson Shark (100%) and Western Shovelnose Ray (100%).

## 5.3 Reasons for Release

A summary of the proportions for common reasons for release during 2017/18 is given in Table 6. The most common reasons for release were: "Too Small" (personal preference), "Undersize" (below legal limit), "Too Many" (personal preference), "Over Limit" (Above legal bag limit), "Catch Release" (sport fishing) and "Other", which includes protected females and species.

"Too Small" includes catches that are too small in terms of personal preference, not related to regulations. This reason for release occurred in proportions of 30% or more for Australian Herring, Bight Redfish, Golden Snapper, Saddletail Snapper, School Whiting and Western Blue Groper.

"Under Size" includes catches below the legal size. This reason for release occurred in proportions of 60% or more for Baldchin Groper, Blackspot Tuskfish, Blue Swimmer Crab, Blue Tuskfish, Breaksea Cod, Coral Trout, Goldband Snapper, Grass Emperor, King George Whiting, Pink Snapper, Southern Bluespotted Flathead, Spangled Emperor, Stripey Snapper, West Australian Dhufish and Yellowtail Flathead.

"Too Many" includes catches the fisher did not want/need anymore/any, had enough, not wanted, not targeted, no preference. This reason for release occurred in proportions of 40% for more for Blue Threadfin, Cuttlefish, Dusky Whaler, Gummy Sharks, Octopus, Port Jackson Shark, Sea Sweep, Western Blue Devil and Yellowspotted Rockcod.

"Over Limit" includes catches above the legal bag limit. This reason for release did not occur in proportions greater than 20%, except for Crimson Snapper (23%) and Harlequin Fish (20%). "Over Limit" catches generally occurred in proportions of 10–20% for Barramundi, Bight Redfish, Chinaman Rockcod, King Threadfin, Northern Pearl Perch, Redthroat Emperor, West Australian Dhufish and Western Rock Lobster.

"Catch Release" fishing includes sport fishing, where fish are not tagged before release. This reason for release occurred in proportions of 30% or more for Barramundi, Giant Trevally, Golden Trevally, Gummy Sharks, Moses' Snapper, Mulloway, Queenfish, Snook, Southern Bluefin Tuna, Western Australian Salmon, Yellowfin Tuna and Yellowtail Kingfish. "Catch Release" catches occurred in proportions of 20–30% for Black Bream, Bluebarred Parrotfish, King Threadfin, Mackerel Tuna, Shark Mackerel, Tailor and Western Shovelnose Ray.

"Other" reasons for release included greater than legal limit, too big, too few (not enough for a meal/dinner/all of us), tag & release, conservation (other than legally protected species), sick (fish has signs of disease), damaged, deformed (not sick or damaged), dangerous, female (berried, eggs, setose, tar spot), poor eating quality (don't taste good, not nice to eat, slimy, hard to clean, many

bones, too much effort to cook, perceived or known), species unknown (not sure about species, eating quality or taste), poisonous (flesh or spines), protected species (e.g. sawfish), mistake (caught but got away, nothing to store fish in) or depredated (taken or damaged by another animal either below or at the surface). Collectively, these "Other" reasons for release occurred in proportions of 60% or more for Bronze Whaler, Giant Sea Catfish, Gurnard, Sea Trumpeter, Weeping Toadfish, Western King Wrasse and Western Shovelnose Ray.

**Table 4.** Estimated annual catch (total, kept and released numbers) and proportion released during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); values in italics indicate <30 respondents recorded catches of the species).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Abalone | Roe's Abalone | *Haliotis roei* | *8,696* | *2,378* | ***269*** | ***185*** | *8,965* | *2,458* | 3% |
| Abalone | Greenlip Abalone | *Haliotis laevigata* | ***1,656*** | ***826*** | ***68*** | ***42*** | ***1,724*** | ***839*** | 4% |
| Abalone | Brownlip Abalone | *Haliotis conicopora* | ***784*** | ***335*** | ***56*** | ***53*** | ***840*** | ***360*** | 7% |
| Cephalopod | Cuttlefish | *Sepia spp* | 3,058 | 440 | 1,176 | 232 | 4,234 | 521 | 28% |
| Cephalopod | Octopus | *Octopus spp* | 1,752 | 423 | 324 | 101 | 2,076 | 452 | 16% |
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | 85,565 | 8,037 | 2,954 | 680 | 88,519 | 8,336 | 3% |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | 455,025 | 38,377 | 240,408 | 31,975 | 695,433 | 64,273 | 35% |
| Lobster | Southern Rock Lobster | *Jasus edwardsii* | ***5,140*** | ***2,337*** | ***3,904*** | ***2,085*** | ***9,044*** | ***4,358*** | 43% |
| Lobster | Painted Rock Lobster | *Panulirus versicolor* | ***1,216*** | ***609*** | ***125*** | ***84*** | ***1,341*** | ***618*** | 9% |
| Lobster | Ornate Rock Lobster | *Panulirus ornatus* | *511* | *136* | ***85*** | ***55*** | *596* | *163* | 14% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | 278,299 | 24,380 | 388,227 | 37,297 | 666,526 | 59,098 | 58% |
| Crab | Green Mud Crab | *Scylla serrata* | *1,330* | *369* | ***1,441*** | ***658*** | *2,771* | *821* | 52% |
| Crab | Brown Mud Crab | *Scylla olivacea* | 2,093 | 458 | 1,504 | 415 | 3,597 | 744 | 42% |
| Sharks | Blacktip Reef Shark | *Carcharhinus melanopterus* | 197 | 68 | 1,628 | 438 | 1,824 | 445 | 89% |
| Sharks | Bronze Whaler | *Carcharhinus brachyurus* | 428 | 99 | 1,029 | 246 | 1,457 | 271 | 71% |
| Sharks | Dusky Whaler | *Carcharhinus obscurus* | **66** | **28** | 1,786 | 450 | 1,852 | 451 | 96% |
| Sharks | Greynurse Shark | *Carcharias taurus* | *0* | *0* | ***70*** | ***53*** | ***70*** | ***53*** | 100% |
| Sharks | Gummy Sharks | *Mustelus antarcticus & M stevensi* | 922 | 190 | 771 | 161 | 1,693 | 262 | 46% |
| Sharks | Hammerhead Shark | Family Sphyrnidae | ***19*** | ***18*** | *75* | *30* | *94* | *35* | 80% |
| Sharks | Lemon Shark | *Negaprion acutidens* | *0* | *0* | ***214*** | ***102*** | ***214*** | ***102*** | 100% |
| Sharks | Port Jackson Shark | *Heterodontus portusjacksoni* | **3** | **3** | 1,214 | 278 | 1,217 | 278 | 100% |
| Sharks | Sandbar Shark | *Carcharhinus plumbeus* | ***27*** | ***20*** | ***14*** | ***13*** | ***42*** | ***24*** | 34% |
| Sharks | Tiger Shark | *Galeocerdo cuvier* | ***7*** | ***6*** | ***933*** | ***605*** | ***940*** | ***605*** | 99% |
| Sharks | Whiskery Shark | *Furgaleus macki* | *203* | *71* | *104* | *41* | *307* | *89* | 34% |
| Sharks | Whitetip Reef Shark | *Triaenodon obesus* | ***19*** | ***18*** | ***728*** | ***358*** | ***747*** | ***360*** | 98% |
| Sharks | Wobbegong | Family Orectolobidae | 216 | 78 | 467 | 102 | 684 | 140 | 68% |
| Sharks | Other Whaler | Carcharhinidae - undifferentiated | ***33*** | ***22*** | ***85*** | ***39*** | *118* | *45* | 72% |
| Sharks | Other Shark | Sharks - undifferentiated | 183 | 60 | 2,353 | 432 | 2,536 | 439 | 93% |
| Rays | Sawfishes | Pristidae - undifferentiated | *0* | *0* | ***57*** | ***34*** | ***57*** | ***34*** | 100% |
| Rays | Western Shovelnose Ray | *Aptychotrema vincentiana* | 0 | 0 | 1,038 | 290 | 1,038 | 290 | 100% |
| Rays | Other Rays Skates | Rays - undifferentiated | **46** | **35** | 2,590 | 413 | 2,636 | 414 | 98% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Barracouta | Barracouta | *Thyrsites atun* | *0* | *0* | ***17*** | ***17*** | ***17*** | ***17*** | 100% |
| Billfish | Black Marlin | *Makaira indica* | ***87*** | ***59*** | *528* | *173* | *615* | *200* | 86% |
| Billfish | Blue Marlin | *Makaira nigricans* | ***50*** | ***25*** | ***809*** | ***334*** | *860* | *336* | 94% |
| Billfish | Sailfish | *Istiophorus platypterus* | ***15*** | ***13*** | *892* | *258* | *907* | *261* | 98% |
| Billfish | Striped Marlin | *Tetrapturus audax* | *0* | *0* | ***129*** | ***58*** | ***129*** | ***58*** | 100% |
| Bonito | Bonito | *Sarda spp* | *225* | *78* | ***131*** | ***104*** | *355* | *130* | 37% |
| Bonito | Oriental Bonito | *Sarda orientalis* | ***5*** | ***4*** | ***23*** | ***22*** | ***28*** | ***23*** | 83% |
| Bream | Black Bream | *Acanthopagrus butcheri* | 6,406 | 1,445 | 25,193 | 5,118 | 31,599 | 6,168 | 80% |
| Bream | Frypan Bream | *Argyrops spinifer* | ***83*** | ***34*** | ***79*** | ***67*** | ***162*** | ***87*** | 49% |
| Bream | Northwest Black Bream | *Acanthopagrus palmaris* | ***69*** | ***38*** | ***73*** | ***52*** | ***141*** | ***65*** | 51% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 30,889 | 2,461 | 85,201 | 12,768 | 116,091 | 14,265 | 73% |
| Bream | Tarwhine | *Rhabdosargus sarba* | 1,300 | 477 | 3,893 | 1,131 | 5,193 | 1,272 | 75% |
| Bream | Western Yellowfin Bream | *Acanthopagrus morrisoni* | ***2,126*** | ***1,506*** | ***1,720*** | ***1,118*** | ***3,846*** | ***1,914*** | 45% |
| Bream | Other Bream | Sparidae - undifferentiated | ***70*** | ***40*** | ***45*** | ***30*** | ***114*** | ***50*** | 39% |
| Catfish | Eeltail Catfishes | Plotosidae - undifferentiated | ***254*** | ***190*** | *699* | *276* | ***953*** | ***439*** | 73% |
| Catfish | Estuary Cobbler | *Cnidoglanis macrocephalus* | ***148*** | ***79*** | ***85*** | ***59*** | ***233*** | ***128*** | 36% |
| Catfish | Giant Sea Catfish | *Arius thalassinus* | **15** | **9** | 2,596 | 487 | 2,610 | 488 | 99% |
| Catfish | Silver Cobbler | *Neoarius midgleyi* | *0* | *0* | ***90*** | ***62*** | ***90*** | ***62*** | 100% |
| Catfish | Other Catfish | Ariidae - undifferentiated | ***19*** | ***13*** | *1,074* | *280* | *1,093* | *281* | 98% |
| Cobia | Cobia | *Rachycentron canadum* | 1,206 | 193 | 589 | 179 | 1,795 | 306 | 33% |
| Cod | Barramundi Cod | *Cromileptes altivelis* | *134* | *51* | ***81*** | ***45*** | *216* | *73* | 38% |
| Cod | Blackspotted Rockcod | *Epinephelus malabaricus* | 1,860 | 556 | 6,442 | 1,678 | 8,302 | 2,029 | 78% |
| Cod | Blacktip Rockcod | *Epinephelus fasciatus* | ***19*** | ***18*** | ***64*** | ***34*** | ***82*** | ***38*** | 77% |
| Cod | Breaksea Cod | *Epinephelides armatus* | 15,892 | 1,256 | 9,579 | 949 | 25,471 | 1,945 | 38% |
| Cod | Chinaman Rockcod | *Epinephelus rivulatus* | 9,962 | 2,767 | 11,102 | 1,848 | 21,063 | 3,753 | 53% |
| Cod | Eightbar Grouper | *Hyporthodus octofasciatus* | ***406*** | ***177*** | ***179*** | ***138*** | ***585*** | ***302*** | 31% |
| Cod | Frostback Rockcod | *Epinephelus bilobatus* | ***30*** | ***21*** | ***545*** | ***283*** | ***576*** | ***284*** | 95% |
| Cod | Goldspotted Rockcod | *Epinephelus coioides* | 2,597 | 418 | 4,745 | 767 | 7,342 | 990 | 65% |
| Cod | Harlequin Fish | *Othos dentex* | 2,953 | 370 | 694 | 272 | 3,647 | 550 | 19% |
| Cod | Potato Rockcod | *Epinephelus tukula* | ***19*** | ***18*** | ***21*** | ***18*** | ***39*** | ***25*** | 52% |
| Cod | Queensland Grouper | *Epinephelus lanceolatus* | *0* | *0* | ***19*** | ***13*** | ***19*** | ***13*** | 100% |
| Cod | Rankin Cod | *Epinephelus multinotatus* | 6,477 | 1,023 | 3,163 | 690 | 9,640 | 1,393 | 33% |
| Cod | Temperate Basses & Rockcods | Epinephelidae - undifferentiated | 424 | 110 | 2,520 | 919 | 2,944 | 926 | 86% |
| Cod | Tomato Rockcod | *Cephalopholis sonnerati* | ***52*** | ***50*** | ***55*** | ***36*** | ***107*** | ***85*** | 51% |
| Cod | Yellowspotted Rockcod | *Epinephelus areolatus* | **409** | **172** | 1,592 | 387 | 2,001 | 429 | 80% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 8,096 | 897 | 5,745 | 1,022 | 13,841 | 1,695 | 42% |
| Coral Trout | Yellowedge Coronation Trout | *Variola louti* | *208* | *64* | ***62*** | ***32*** | *270* | *74* | 23% |
| Emperor | Bluespotted Emperor | *Lethrinus punctulatus* | ***445*** | ***179*** | *2,059* | *660* | *2,504* | *751* | 82% |
| Emperor | Grass Emperor | *Lethrinus laticaudis* | 13,726 | 2,284 | 23,270 | 4,546 | 36,996 | 6,219 | 63% |
| Emperor | Longnose Emperor | *Lethrinus olivaceus* | ***323*** | ***145*** | ***154*** | ***120*** | ***476*** | ***258*** | 32% |
| Emperor | Redspot Emperor | *Lethrinus lentjan* | ***10*** | ***7*** | ***113*** | ***97*** | ***123*** | ***97*** | 92% |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | 7,899 | 1,318 | 13,490 | 2,347 | 21,389 | 3,228 | 63% |
| Emperor | Robinsons' Seabream | *Gymnocranius grandoculis* | 971 | 310 | **222** | **109** | 1,194 | 332 | 19% |
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 8,290 | 1,061 | 12,211 | 1,643 | 20,501 | 2,420 | 60% |
| Emperor | Yellowtail Emperor | *Lethrinus atkinsoni* | ***75*** | ***71*** | ***604*** | ***502*** | ***679*** | ***507*** | 89% |
| Emperor | Other Emperor | Lethrinidae - undifferentiated | *492* | *154* | ***646*** | ***267*** | *1,138* | *383* | 57% |
| Flathead | Northern Sand Flathead | *Platycephalus endrachtensis* | ***273*** | ***112*** | ***530*** | ***459*** | ***803*** | ***559*** | 66% |
| Flathead | Southern Bluespotted Flathead | *Platycephalus speculator* | 3,691 | 792 | 13,325 | 2,394 | 17,016 | 2,729 | 78% |
| Flathead | Yellowtail Flathead | *Platycephalus westraliae* | 902 | 199 | 8,868 | 1,880 | 9,770 | 1,951 | 91% |
| Flounder | Smalltooth Flounder | *Pseudorhombus jenynsii* | *174* | *56* | ***68*** | ***41*** | *242* | *74* | 28% |
| Flounder | Other Flatfish | *Bothidae & Pleuronectidae spp* | ***50*** | ***39*** | ***12*** | ***12*** | ***62*** | ***40*** | 20% |
| Garfish | Southern Garfish | *Hyporhamphus melanochir* | *796* | *311* | ***1,926*** | ***927*** | *2,723* | *980* | 71% |
| Garfish | Three-by-two Garfish | *Hemiramphus robustus* | ***1,343*** | ***710*** | ***257*** | ***184*** | ***1,600*** | ***745*** | 16% |
| Garfish | Other Garfish | Hemiramphidae - undifferentiated | ***279*** | ***269*** | ***401*** | ***370*** | ***681*** | ***458*** | 59% |
| Giant Perch | Barramundi | *Lates calcarifer* | 1,587 | 486 | 4,214 | 924 | 5,801 | 1,203 | 73% |
| Giant Perch | Sand Bass | *Psammoperca waigiensis* | ***85*** | ***46*** | ***127*** | ***77*** | ***213*** | ***90*** | 60% |
| Goatfish | Bluespotted Goatfish | *Upeneichthys vlamingii* | 626 | 187 | 1,361 | 339 | 1,987 | 391 | 68% |
| Grunter | Sea Trumpeter | *Pelsartia humeralis* | **360** | **182** | 6,168 | 1,445 | 6,528 | 1,459 | 94% |
| Grunter | Western Sooty Grunter | *Hephaestus jenkinsi* | ***157*** | ***136*** | ***213*** | ***101*** | ***370*** | ***169*** | 58% |
| Grunter | Western Striped Grunter | *Pelates octolineatus* | **195** | **162** | 3,605 | 904 | 3,800 | 934 | 95% |
| Grunter | Other Trumpeter | *Latridopsis spp* | ***262*** | ***252*** | ***736*** | ***384*** | ***998*** | ***459*** | 74% |
| Grunter Bream | Painted Sweetlips | *Diagramma labiosum* | 1,092 | 245 | 1,199 | 430 | 2,291 | 521 | 52% |
| Grunter Bream | Barred Javelin | *Pomadasys kaakan* | ***217*** | ***93*** | ***512*** | ***278*** | ***729*** | ***363*** | 70% |
| Grunter Bream | Blotched Javelin | *Pomadasys maculatus* | ***15*** | ***9*** | ***22*** | ***14*** | ***36*** | ***17*** | 60% |
| Grunter Bream | Grunter Bream | Haemulidae - undifferentiated | ***7*** | ***6*** | ***344*** | ***228*** | ***352*** | ***232*** | 98% |
| Gurnard | Bighead Gurnard Perch | *Neosebastes pandus* | **178** | **87** | 2,600 | 729 | 2,778 | 735 | 94% |
| Gurnard | Gurnard | Neosebastidae - undifferentiated | **239** | **118** | 2,242 | 376 | 2,481 | 395 | 90% |
| Jewfish | Black Jewfish | *Protonibea diacanthus* | *234* | *85* | *265* | *89* | *500* | *143* | 53% |
| Jewfish | Mulloway | *Argyrosomus japonicus* | 394 | 92 | **901** | **379** | 1,296 | 401 | 70% |
| King Snapper | Goldband Snapper | *Pristipomoides multidens* | 3,876 | 1,124 | 1,567 | 469 | 5,443 | 1,467 | 29% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| King Snapper | Rosy Snapper | *Pristipomoides filamentosus* | *685* | *265* | ***210*** | ***112*** | *896* | *301* | 23% |
| King Snapper | Sharptooth Snapper | *Pristipomoides typus* | ***74*** | ***46*** | ***90*** | ***63*** | ***164*** | ***78*** | 55% |
| Leatherjacket | Horseshoe Leatherjacket | *Meuschenia hippocrepis* | *233* | *79* | ***1,382*** | ***653*** | ***1,615*** | ***658*** | 86% |
| Leatherjacket | Sixspine Leatherjacket | *Meuschenia freycineti* | ***223*** | ***139*** | ***150*** | ***81*** | ***374*** | ***161*** | 40% |
| Leatherjacket | Leatherjacket | Monacanthidae - undifferentiated | 677 | 209 | 3,229 | 725 | 3,906 | 783 | 83% |
| Lizardfish | Lizardfish Grinners | Bathysauridae, Synodontidae - undifferentiated | ***84*** | ***48*** | *589* | *188* | *673* | *204* | 88% |
| Longtom | Longtom | Belonidae - undifferentiated | ***33*** | ***16*** | ***451*** | ***200*** | ***484*** | ***201*** | 93% |
| Mackerel | Blue Mackerel | *Scomber australasicus* | *957* | *373* | ***160*** | ***93*** | *1,117* | *384* | 14% |
| Mackerel | Grey Mackerel | *Scomberomorus semifasciatus* | *530* | *178* | ***358*** | ***202*** | *888* | *331* | 40% |
| Mackerel | School Mackerel | *Scomberomorus queenslandicus* | 682 | 223 | 517 | 146 | 1,199 | 336 | 43% |
| Mackerel | Shark Mackerel | *Grammatorcynus bicarinatus* | 421 | 140 | 551 | 140 | 972 | 198 | 57% |
| Mackerel | Spanish Mackerel | *Scomberomorus commerson* | 5,221 | 590 | 4,345 | 874 | 9,566 | 1,260 | 45% |
| Mackerel | Spotted Mackerel | *Scomberomorus munroi* | *273* | *84* | ***652*** | ***279*** | *926* | *307* | 70% |
| Mackerel | Wahoo | *Acanthocybium solandri* | *204* | *60* | ***232*** | ***171*** | ***436*** | ***195*** | 53% |
| Mackerel | Other Mackerel & Tuna | Scombridae - undifferentiated | ***793*** | ***620*** | *229* | *89* | ***1,022*** | ***628*** | 22% |
| Mahi Mahi | Mahi Mahi | *Coryphaena spp* | *437* | *132* | ***800*** | ***448*** | *1,236* | *482* | 65% |
| Morwong | Blue Morwong | *Nemadactylus valenciennesi* | 4,336 | 573 | 875 | 198 | 5,210 | 661 | 17% |
| Morwong | Dusky Morwong | *Dactylophora nigricans* | *0* | *0* | ***19*** | ***18*** | ***19*** | ***18*** | 100% |
| Morwong | Other Morwong | Cheilodactylidae - undifferentiated | ***12*** | ***12*** | *0* | *0* | ***12*** | ***12*** | 0% |
| Mullet | Bluetail Mullet | *Valamugil buchanani* | ***156*** | ***134*** | *0* | *0* | ***156*** | ***134*** | 0% |
| Mullet | Diamondscale Mullet | *Liza vaigiensis* | ***338*** | ***205*** | *0* | *0* | ***338*** | ***205*** | 0% |
| Mullet | Greenback Mullet | *Liza subviridis* | ***160*** | ***140*** | ***37*** | ***24*** | ***197*** | ***162*** | 19% |
| Mullet | Sea Mullet | *Mugil cephalus* | ***8,025*** | ***4,998*** | ***1,207*** | ***1,018*** | ***9,232*** | ***5,226*** | 13% |
| Mullet | Yelloweye Mullet | *Aldrichetta forsteri* | ***3,878*** | ***2,434*** | ***37*** | ***26*** | ***3,916*** | ***2,434*** | 1% |
| Mullet | Other Mullet | Mugilidae - undifferentiated | ***1,094*** | ***783*** | ***207*** | ***132*** | ***1,301*** | ***803*** | 16% |
| Pearl Perch | Northern Pearl Perch | *Glaucosoma buergeri* | 480 | 104 | **235** | **95** | 715 | 155 | 33% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 27,924 | 1,952 | 39,918 | 4,552 | 67,842 | 6,028 | 59% |
| Pike | Great Barracuda | *Sphyraena barracuda* | ***23*** | ***18*** | *564* | *209* | *587* | *211* | 96% |
| Pike | Snook | *Sphyraena novaehollandiae* | 1,181 | 404 | **1,210** | **561** | 2,391 | 795 | 51% |
| Pike | Yellowtail Barracuda | *Sphyraena obtusata* | ***264*** | ***139*** | *528* | *192* | *792* | *242* | 67% |
| Pike | Other Pike | Sphyraenidae - undifferentiated | ***250*** | ***167*** | ***169*** | ***106*** | ***419*** | ***197*** | 40% |
| Queenfish | Queenfish | *Scomberoides spp* | 199 | 57 | 1,399 | 385 | 1,598 | 399 | 88% |
| Redfish | Bight Redfish | *Centroberyx gerrardi* | 12,209 | 1,698 | 4,725 | 1,136 | 16,933 | 2,561 | 28% |
| Redfish | Swallowtail | *Centroberyx lineatus* | 2,550 | 443 | 1,920 | 382 | 4,470 | 720 | 43% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Redfish | Yelloweye Redfish | *Centroberyx australis* | ***17*** | ***17*** | *0* | *0* | ***17*** | ***17*** | 0% |
| Salmon Herring | Australian Herring | *Arripis georgianus* | 94,991 | 10,330 | 24,554 | 2,833 | 119,545 | 11,793 | 21% |
| Salmon Herring | Western Australian Salmon | *Arripis truttaceus* | 1,717 | 344 | 3,306 | 1,087 | 5,023 | 1,260 | 66% |
| Sergeant Baker | Sergeant Baker | *Aulopus purpurissatus* | 2,057 | 430 | 5,404 | 659 | 7,461 | 858 | 72% |
| Small Baitfish | Small Baitfish | Clupeidae, Engralidae & Atherinidae - undifferentiated | ***179*** | ***161*** | *0* | *0* | ***179*** | ***161*** | 0% |
| Small Baitfish | Other Herring | Clupeidae - undifferentiated | ***181*** | ***160*** | ***699*** | ***603*** | ***880*** | ***624*** | 79% |
| Sweep | Banded Sweep | *Scorpis georgiana* | 604 | 225 | 1,003 | 288 | 1,607 | 371 | 62% |
| Sweep | Sea Sweep | *Scorpis aequipinnis* | 2,491 | 439 | 2,224 | 374 | 4,715 | 644 | 47% |
| Sweep | Silver Drummer | *Kyphosus spp complex* | ***31*** | ***20*** | ***82*** | ***56*** | ***113*** | ***59*** | 72% |
| Tailor | Tailor | *Pomatomus saltatrix* | 5,427 | 1,370 | 8,612 | 2,865 | 14,039 | 3,678 | 61% |
| Threadfin | Blue Threadfin | *Eleutheronema tetradactylum* | 1,428 | 319 | 1,306 | 407 | 2,734 | 577 | 48% |
| Threadfin | King Threadfin | *Polydactylus macrochir* | 634 | 126 | 575 | 179 | 1,208 | 250 | 48% |
| Threadfin Bream | Rosy Threadfin Bream | *Nemipterus furcosus* | ***101*** | ***53*** | ***89*** | ***53*** | *190* | *75* | 47% |
| Threadfin Bream | Western Butterfish | *Pentapodus vitta* | 3,887 | 1,207 | 14,910 | 3,161 | 18,797 | 3,540 | 79% |
| Trevalla | Blue-Eye Trevalla | *Hyperoglyphe antarctica* | ***80*** | ***44*** | ***300*** | ***293*** | ***381*** | ***296*** | 79% |
| Trevally | Amberjack | *Seriola dumerili* | ***93*** | ***42*** | ***183*** | ***100*** | *276* | *108* | 66% |
| Trevally | Bludger Trevally | *Carangoides gymnostethus* | *186* | *65* | *778* | *299* | *964* | *310* | 81% |
| Trevally | Common Dart | *Trachinotus botla* | ***17*** | ***17*** | ***838*** | ***774*** | ***855*** | ***774*** | 98% |
| Trevally | Giant Trevally | *Caranx ignobilis* | 461 | 172 | 3,128 | 1,042 | 3,589 | 1,066 | 87% |
| Trevally | Golden Trevally | *Gnathanodon speciosus* | 2,085 | 564 | 5,035 | 1,680 | 7,119 | 1,831 | 71% |
| Trevally | Rainbow Runner | *Elagatis bipinnulata* | ***29*** | ***24*** | *0* | *0* | ***29*** | ***24*** | 0% |
| Trevally | Samsonfish | *Seriola hippos* | 1,718 | 235 | 6,367 | 1,032 | 8,086 | 1,106 | 79% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | 25,556 | 3,231 | 20,358 | 3,862 | 45,913 | 6,592 | 44% |
| Trevally | Turrum | *Carangoides fulvoguttatus* | ***53*** | ***36*** | ***337*** | ***143*** | ***389*** | ***163*** | 86% |
| Trevally | Yellowtail Kingfish | *Seriola lalandi* | 1,102 | 256 | **1,357** | **639** | 2,459 | 704 | 55% |
| Trevally | Yellowtail Scad | *Trachurus novaezelandiae* | ***1,531*** | ***740*** | ***1,047*** | ***567*** | *2,578* | *940* | 41% |
| Trevally | Other Trevally | Carangidae - undifferentiated | 675 | 206 | **859** | **400** | 1,535 | 474 | 56% |
| Tripletail | Tripletail | *Lobotes surinamensis* | ***79*** | ***33*** | ***101*** | ***56*** | ***179*** | ***85*** | 56% |
| Tropical Snapper | Brownstripe Snapper | *Lutjanus vitta* | ***5*** | ***4*** | ***14*** | ***13*** | ***19*** | ***14*** | 75% |
| Tropical Snapper | Chinamanfish | *Symphorus nematophorus* | *179* | *54* | ***278*** | ***115*** | *457* | *142* | 61% |
| Tropical Snapper | Crimson Snapper | *Lutjanus erythropterus* | 1,301 | 327 | 2,180 | 752 | 3,481 | 987 | 63% |
| Tropical Snapper | Darktail Snapper | *Lutjanus lemniscatus* | ***308*** | ***293*** | *0* | *0* | ***308*** | ***293*** | 0% |
| Tropical Snapper | Flame Snapper | *Etelis coruscens* | ***3*** | ***2*** | ***200*** | ***133*** | ***203*** | ***133*** | 98% |
| Tropical Snapper | Golden Snapper | *Lutjanus johnii* | 1,181 | 313 | 1,789 | 636 | 2,969 | 825 | 60% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Tropical Snapper | Mangrove Jack | *Lutjanus argentimaculatus* | 1,941 | 407 | 2,163 | 673 | 4,104 | 924 | 53% |
| Tropical Snapper | Maori Snapper | *Lutjanus rivulatus* | ***36*** | ***15*** | ***15*** | ***13*** | *51* | *20* | 29% |
| Tropical Snapper | Moses' Snapper | *Lutjanus russellii* | 753 | 223 | **569** | **249** | 1,322 | 345 | 43% |
| Tropical Snapper | Red Emperor | *Lutjanus sebae* | 7,909 | 1,060 | 8,439 | 1,273 | 16,348 | 2,004 | 52% |
| Tropical Snapper | Ruby Snapper | *Etelis carbunculus* | ***420*** | ***212*** | ***66*** | ***39*** | ***486*** | ***217*** | 14% |
| Tropical Snapper | Saddletail Snapper | *Lutjanus malabaricus* | **3,564** | **1,638** | 2,578 | 874 | 6,142 | 2,105 | 42% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | 5,132 | 836 | 11,300 | 1,960 | 16,433 | 2,542 | 69% |
| Tropical Snapper | Other Snapper | Lutjanidae - undifferentiated | *281* | *93* | ***420*** | ***171*** | *700* | *198* | 60% |
| Tuna | Dogtooth Tuna | *Gymnosarda unicolor* | ***13*** | ***13*** | ***182*** | ***169*** | ***194*** | ***169*** | 93% |
| Tuna | Longtail Tuna | *Thunnus orientalis* | ***147*** | ***75*** | ***273*** | ***154*** | ***420*** | ***171*** | 65% |
| Tuna | Mackerel Tuna | *Euthynnus affinis* | 576 | 140 | 1,030 | 251 | 1,606 | 306 | 64% |
| Tuna | Skipjack Tuna | *Katsuwonus pelamis* | ***460*** | ***194*** | ***244*** | ***166*** | *705* | *266* | 35% |
| Tuna | Southern Bluefin Tuna | *Thunnus maccoyii* | 1,823 | 542 | 872 | 264 | 2,694 | 691 | 32% |
| Tuna | Yellowfin Tuna | *Thunnus albacares* | 606 | 129 | 517 | 191 | 1,123 | 273 | 46% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | 16,607 | 1,554 | 9,062 | 1,132 | 25,669 | 2,374 | 35% |
| Tuskfish Wrasse | Blackspot Tuskfish | *Choerodon schoenleinii* | 3,174 | 601 | 2,069 | 556 | 5,242 | 1,006 | 39% |
| Tuskfish Wrasse | Blue Tuskfish | *Choerodon cyanodus* | 1,966 | 458 | 1,262 | 351 | 3,228 | 681 | 39% |
| Tuskfish Wrasse | Bluebarred Parrotfish | *Scarus ghobban spp complex* | **1,444** | **938** | 1,355 | 484 | 2,799 | 1,057 | 48% |
| Tuskfish Wrasse | Bluespotted Tuskfish | *Choerodon cauteroma* | ***259*** | ***131*** | ***256*** | ***135*** | *515* | *191* | 50% |
| Tuskfish Wrasse | Brownspotted Wrasse | *Notolabrus parilus* | 3,799 | 1,111 | 22,285 | 3,164 | 26,084 | 3,912 | 85% |
| Tuskfish Wrasse | Foxfish | *Bodianus frenchii* | 1,471 | 252 | 1,122 | 258 | 2,593 | 399 | 43% |
| Tuskfish Wrasse | Goldspot Pigfish | *Bodianus perditio* | *168* | *51* | ***82*** | ***40*** | *249* | *71* | 33% |
| Tuskfish Wrasse | Purple Tuskfish | *Choerodon cephalotes* | *196* | *64* | ***116*** | ***52*** | *312* | *92* | 37% |
| Tuskfish Wrasse | Southern Maori Wrasse | *Ophthalmolepis lineolatus* | 820 | 317 | 3,604 | 1,050 | 4,424 | 1,138 | 81% |
| Tuskfish Wrasse | Western Blue Groper | *Achoerodus gouldii* | 704 | 201 | **209** | **137** | 913 | 322 | 23% |
| Tuskfish Wrasse | Western King Wrasse | *Coris auricularis* | 5,345 | 1,045 | 30,068 | 3,465 | 35,413 | 3,910 | 85% |
| Tuskfish Wrasse | Other Parrotfish | Scaridae - undifferentiated | ***343*** | ***185*** | *2,130* | *650* | *2,473* | *694* | 86% |
| Tuskfish Wrasse | Other Tuskfish | *Choerodon spp* | ***37*** | ***36*** | ***107*** | ***60*** | ***144*** | ***69*** | 74% |
| Tuskfish Wrasse | Other Wrasse | Labridae - undifferentiated | **40** | **28** | 3,290 | 1,280 | 3,330 | 1,281 | 99% |
| Western Blue Devil | Western Blue Devil | *Paraplesiops sinclairi* | **35** | **14** | 572 | 130 | 607 | 132 | 94% |
| Whiting | Goldenline Whiting | *Sillago analis* | ***35*** | ***34*** | ***7*** | ***6*** | ***42*** | ***34*** | 17% |
| Whiting | King George Whiting | *Sillaginodes punctata* | 42,239 | 7,230 | 10,410 | 1,801 | 52,649 | 8,310 | 20% |
| Whiting | School Whiting | *Sillago schomburgkii, bassensis & vittata* | 196,341 | 25,886 | 63,019 | 17,728 | 259,359 | 37,475 | 24% |
| Whiting | Western Trumpeter Whiting | *Sillago burrus* | ***1,539*** | ***856*** | *2,944* | *1,053* | *4,483* | *1,445* | 66% |
| Whiting | Other Whiting | Sillaginidae - undifferentiated | ***1,362*** | ***820*** | ***628*** | ***318*** | ***1,990*** | ***1,116*** | 32% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Wreckfish | Bass Groper | *Polyprion americanus* | ***128*** | ***71*** | ***19*** | ***18*** | ***147*** | ***74*** | 13% |
| Wreckfish | Hapuku | *Polyprion oxygeneios* | *587* | *195* | ***26*** | ***20*** | *614* | *198* | 4% |
| Finfish Other | Butterfish | Stromateidae - undifferentiated | *0* | *0* | ***34*** | ***23*** | ***34*** | ***23*** | 100% |
| Finfish Other | Dory | Zeidae - undifferentiated | ***58*** | ***29*** | *0* | *0* | ***58*** | ***29*** | 0% |
| Finfish Other | Conger Eel | *Conger spp* | *0* | *0* | ***33*** | ***19*** | ***33*** | ***19*** | 100% |
| Finfish Other | Other Eel | Order Anguilliformes - undifferentiated | ***56*** | ***33*** | *298* | *82* | *354* | *88* | 84% |
| Finfish Other | Moonfish Batfish | Lampridae - undifferentiated | *0* | *0* | ***212*** | ***117*** | ***212*** | ***117*** | 100% |
| Finfish Other | Oxeye Herring | *Megalops cyprinoides* | ***7*** | ***6*** | ***65*** | ***57*** | ***73*** | ***64*** | 90% |
| Finfish Other | Silver Toadfish | *Lagocephalus sceleratus* | ***51*** | ***34*** | *2,096* | *637* | *2,147* | *641* | 98% |
| Finfish Other | Weeping Toadfish | *Torquigener pleurogramma* | **314** | **303** | 5,635 | 1,284 | 5,950 | 1,319 | 95% |
| Finfish Other | Other Toadfish | Tetraodontidae - undifferentiated | **36** | **20** | 4,332 | 1,344 | 4,368 | 1,344 | 99% |
| Finfish Other | Other Boxfish | Ostraciidae - undifferentiated | ***7*** | ***7*** | *0* | *0* | ***7*** | ***7*** | 0% |
| Finfish Other | Other Boarfish | Pentacerotidae - undifferentiated | ***155*** | ***82*** | *0* | *0* | ***155*** | ***82*** | 0% |

**Table 5.** Summary of release rates for selected species during 2017/18 by RBFL holders aged five years or older.

| 0 to 24% | 25 to 39% | 40 to 59% | 60 to 74% | 75 to 89% | 90 to 100% |
|---|---|---|---|---|---|
| Squid | Barcheek Coral Trout | Brown Mud Crab | Golden Snapper | Blackspotted Rockcod | Gurnard |
| Octopus | Cuttlefish | Saddletail Snapper | Tailor | Sth'n Bluespotted Flathead | Yellowtail Flathead |
| Blue Morwong | Bight Redfish | Swallowtail | Banded Sweep | Samsonfish | Bighead Gurnard Perch |
| Yellowfin Whiting | Goldband Snapper | Moses' Snapper | Crimson Snapper | Western Butterfish | Western Blue Devil |
| Robinsons' Seabream | Southern Bluefin Tuna | School Mackerel | Grass Emperor | Yellowspotted Rockcod | Sea Trumpeter |
| Harlequin Fish | Rankin Cod | Foxfish | Redthroat Emperor | Black Bream | Weeping Toadfish |
| King George Whiting | Cobia | Gummy Shark | Mackerel Tuna | Southern Maori Wrasse | Western Striped Grunter |
| Australian Herring | Northern Pearl Perch | Silver Trevally | Goldspotted Rockcod | Leatherjacket | Dusky Whaler |
| Western Blue Groper | Western School Whiting | Spanish Mackerel | Western Australian Salmon | Western King Wrasse | Giant Sea Catfish |
| School Whiting | Western Rock Lobster | Yellowfin Tuna | Wobbegong | Brownspotted Wrasse | Port Jackson Shark |
| | Baldchin Groper | Common Coral Trout | Bluespotted Goatfish | Giant Trevally | Western Shovelnose Ray |
| | Breaksea Cod | Sea Sweep | Stripey Snapper | Queenfish | Billfish |
| | Blue Tuskfish | King Threadfin | Mulloway | Blacktip Reef Shark | |
| | Blackspot Tuskfish | Blue Threadfin | Bronze Whaler | | |
| | | Bluebarred Parrotfish | Golden Trevally | | |
| | | Snook | Sergeant Baker | | |
| | | Red Emperor | Barramundi | | |
| | | Painted Sweetlips | Pink Snapper | | |
| | | Mangrove Jack | Tarwhine | | |
| | | Chinaman Rockcod | | | |
| | | Yellowtail Kingfish | | | |
| | | Shark Mackerel | | | |
| | | Blue Swimmer Crab | | | |
| | | West Australian Dhufish | | | |
| | | Spangled Emperor | | | |

**Table 6.** Proportion released by specified reasons during 2017/18 by RBFL holders aged five years or older (values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Too Small | Under Size | Too Many | Over Limit | Catch Release | Other |
|---|---|---|---|---|---|---|---|---|
| Cephalopod | Cuttlefish | *Sepia spp* | 2% | 8% | 54% | 0% | 12% | 25% |
| Cephalopod | Octopus | *Octopus spp* | 22% | 0% | 58% | 0% | 0% | 21% |
| Cephalopod | Squid | *Order Teuthoidea - undifferentiated* | 26% | 30% | 19% | 7% | 4% | 14% |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | 6% | 56% | 6% | 15% | 0% | 17% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | 3% | 79% | 0% | 2% | 0% | 16% |
| Crab | Brown Mud Crab | *Scylla olivacea* | 6% | 53% | 0% | 0% | 0% | 41% |
| Sharks | Blacktip Reef Shark | *Carcharhinus melanopterus* | 0% | 1% | 28% | 0% | 19% | 52% |
| Sharks | Bronze Whaler | *Carcharhinus brachyurus* | 1% | 8% | 24% | 3% | 2% | 62% |
| Sharks | Dusky Whaler | *Carcharhinus obscurus* | 0% | 8% | 67% | 0% | 3% | 22% |
| Sharks | Gummy Sharks | *Mustelus antarcticus & M stevensi* | 3% | 2% | 45% | 0% | 31% | 20% |
| Sharks | Port Jackson Shark | *Heterodontus portusjacksoni* | 6% | 0% | 46% | 0% | 11% | 38% |
| Sharks | Wobbegong | *Family Orectolobidae* | 8% | 4% | 36% | 0% | 17% | 35% |
| Sharks | Other Shark | *Sharks - undifferentiated* | 0% | 0% | 60% | 0% | 12% | 27% |
| Rays | Western Shovelnose Ray | *Aptychotrema vincentiana* | 0% | 0% | 20% | 0% | 20% | 60% |
| Rays | Other Rays Skates | *Rays - undifferentiated* | 0% | 0% | 38% | 0% | 9% | 52% |
| Bream | Black Bream | *Acanthopagrus butcheri* | 24% | 35% | 14% | 5% | 21% | 1% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 6% | 84% | 4% | 2% | 3% | 2% |
| Bream | Tarwhine | *Rhabdosargus sarba* | 12% | 47% | 17% | 0% | 2% | 22% |
| Catfish | Giant Sea Catfish | *Arius thalassinus* | 2% | 0% | 19% | 0% | 16% | 63% |
| Cobia | Cobia | *Rachycentron canadum* | 12% | 31% | 19% | 0% | 9% | 29% |
| Cod | Blackspotted Rockcod | *Epinephelus malabaricus* | 7% | 50% | 15% | 0% | 11% | 18% |
| Cod | Breaksea Cod | *Epinephelides armatus* | 12% | 65% | 8% | 9% | 1% | 5% |
| Cod | Chinaman Rockcod | *Epinephelus rivulatus* | 22% | 24% | 20% | 14% | 7% | 12% |
| Cod | Goldspotted Rockcod | *Epinephelus coioides* | 18% | 31% | 21% | 0% | 7% | 23% |
| Cod | Harlequin Fish | *Othos dentex* | 12% | 28% | 17% | 20% | 9% | 14% |
| Cod | Rankin Cod | *Epinephelus multinotatus* | 21% | 37% | 25% | 2% | 7% | 7% |
| Cod | Temperate Basses & Rockcods | *Epinephelidae - undifferentiated* | 7% | 49% | 13% | 0% | 2% | 30% |
| Cod | Yellowspotted Rockcod | *Epinephelus areolatus* | 9% | 33% | 52% | 0% | 1% | 5% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 9% | 60% | 12% | 2% | 4% | 13% |
| Emperor | Grass Emperor | *Lethrinus laticaudis* | 16% | 65% | 8% | 1% | 6% | 4% |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | 19% | 37% | 12% | 11% | 4% | 17% |
| Emperor | Robinsons' Seabream | *Gymnocranius grandoculis* | 0% | **47%** | **17%** | **8%** | **16%** | **12%** |

| Reporting Group | Common Name | Scientific Name | Too Small | Under Size | Too Many | Over Limit | Catch Release | Other |
|---|---|---|---|---|---|---|---|---|
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 7% | 67% | 9% | 0% | 5% | 11% |
| Flathead | Southern Bluespotted Flathead | *Platycephalus speculator* | 28% | 62% | 6% | 0% | 3% | 1% |
| Flathead | Yellowtail Flathead | *Platycephalus westraliae* | 16% | 67% | 5% | 0% | 2% | 10% |
| Giant Perch | Barramundi | *Lates calcarifer* | 5% | 25% | 12% | 10% | 36% | 12% |
| Goatfish | Bluespotted Goatfish | *Upeneichthys vlamingii* | 16% | 14% | 30% | 0% | 0% | 40% |
| Grunter | Sea Trumpeter | *Pelsartia humeralis* | 1% | 10% | 18% | 0% | 0% | 70% |
| Grunter | Western Striped Grunter | *Pelates octolineatus* | 9% | 5% | 21% | 0% | 8% | 57% |
| Grunter Bream | Painted Sweetlips | *Diagramma labiosum* | 4% | 35% | 17% | 1% | 0% | 44% |
| Gurnard | Bighead Gurnard Perch | *Neosebastes pandus* | 13% | 1% | 25% | 0% | 4% | 57% |
| Gurnard | Gurnard | *Neosebastidae - undifferentiated* | 14% | 6% | 16% | 0% | 4% | 60% |
| Jewfish | Mulloway | *Argyrosomus japonicus* | **3%** | **22%** | **31%** | 0% | **43%** | **1%** |
| King Snapper | Goldband Snapper | *Pristipomoides multidens* | 0% | 63% | 8% | 1% | 0% | 28% |
| Leatherjacket | Leatherjacket | *Monacanthidae - undifferentiated* | 14% | 19% | 24% | 0% | 2% | 41% |
| Mackerel | School Mackerel | *Scomberomorus queenslandicus* | 10% | 43% | 27% | 3% | 8% | 10% |
| Mackerel | Shark Mackerel | *Grammatorcynus bicarinatus* | 1% | 25% | 33% | 0% | 23% | 17% |
| Mackerel | Spanish Mackerel | *Scomberomorus commerson* | 8% | 46% | 11% | 1% | 13% | 21% |
| Morwong | Blue Morwong | *Nemadactylus valenciennesi* | 6% | 34% | 27% | 9% | 4% | 20% |
| Pearl Perch | Northern Pearl Perch | *Glaucosoma buergeri* | **9%** | **46%** | **8%** | **13%** | 0% | **24%** |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 9% | 69% | 4% | 14% | 1% | 3% |
| Pike | Snook | *Sphyraena novaehollandiae* | **24%** | **8%** | **12%** | 0% | **47%** | **10%** |
| Queenfish | Queenfish | *Scomberoides spp* | 4% | 12% | 23% | 0% | 49% | 12% |
| Redfish | Bight Redfish | *Centroberyx gerrardi* | 38% | 36% | 11% | 10% | 3% | 2% |
| Redfish | Swallowtail | *Centroberyx lineatus* | 18% | 33% | 37% | 2% | 4% | 6% |
| Salmon Herring | Australian Herring | *Arripis georgianus* | 38% | 22% | 13% | 6% | 16% | 5% |
| Salmon Herring | Western Australian Salmon | *Arripis truttaceus* | 5% | 5% | 28% | 1% | 53% | 8% |
| Sergeant Baker | Sergeant Baker | *Aulopus purpurissatus* | 5% | 12% | 24% | 0% | 4% | 55% |
| Sweep | Banded Sweep | *Scorpis georgiana* | 16% | 5% | 23% | 0% | 9% | 47% |
| Sweep | Sea Sweep | *Scorpis aequipinnis* | 14% | 11% | 52% | 0% | 2% | 21% |
| Tailor | Tailor | *Pomatomus saltatrix* | 13% | 41% | 16% | 0% | 29% | 0% |
| Threadfin | Blue Threadfin | *Eleutheronema tetradactylum* | 8% | 41% | 43% | 0% | 6% | 2% |
| Threadfin | King Threadfin | *Polydactylus macrochir* | 3% | 43% | 17% | 15% | 20% | 3% |
| Threadfin Bream | Western Butterfish | *Pentapodus vitta* | 15% | 8% | 22% | 0% | 4% | 51% |
| Trevally | Giant Trevally | *Caranx ignobilis* | 3% | 13% | 20% | 0% | 49% | 15% |
| Trevally | Golden Trevally | *Gnathanodon speciosus* | 7% | 8% | 17% | 0% | 50% | 18% |

| Reporting Group | Common Name | Scientific Name | Too Small | Under Size | Too Many | Over Limit | Catch Release | Other |
|---|---|---|---|---|---|---|---|---|
| Trevally | Samsonfish | *Seriola hippos* | 4% | 12% | 37% | 1% | 16% | 30% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | 25% | 42% | 27% | 0% | 2% | 4% |
| Trevally | Yellowtail Kingfish | *Seriola lalandi* | **2%** | **12%** | **12%** | 0% | **47%** | **27%** |
| Trevally | Other Trevally | *Carangidae - undifferentiated* | **7%** | **5%** | **23%** | 0% | **49%** | **17%** |
| Tropical Snapper | Crimson Snapper | *Lutjanus erythropterus* | 18% | 41% | 11% | 23% | 1% | 6% |
| Tropical Snapper | Golden Snapper | *Lutjanus johnii* | 40% | 49% | 6% | 0% | 5% | 0% |
| Tropical Snapper | Mangrove Jack | *Lutjanus argentimaculatus* | 25% | 27% | 19% | 0% | 10% | 19% |
| Tropical Snapper | Moses' Snapper | *Lutjanus russellii* | **3%** | **42%** | **1%** | 0% | **35%** | **18%** |
| Tropical Snapper | Red Emperor | *Lutjanus sebae* | 11% | 50% | 12% | 4% | 4% | 19% |
| Tropical Snapper | Saddletail Snapper | *Lutjanus malabaricus* | 43% | 29% | 10% | 7% | 7% | 5% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | 10% | 65% | 17% | 0% | 4% | 3% |
| Tuna | Mackerel Tuna | *Euthynnus affinis* | 1% | 18% | 26% | 0% | 27% | 28% |
| Tuna | Southern Bluefin Tuna | *Thunnus maccoyii* | 4% | 17% | 9% | 4% | 30% | 36% |
| Tuna | Yellowfin Tuna | *Thunnus albacares* | 17% | 8% | 7% | 0% | 54% | 14% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | 10% | 75% | 4% | 7% | 2% | 1% |
| Tuskfish Wrasse | Blackspot Tuskfish | *Choerodon schoenleinii* | 5% | 65% | 16% | 0% | 8% | 6% |
| Tuskfish Wrasse | Blue Tuskfish | *Choerodon cyanodus* | 6% | 83% | 6% | 0% | 3% | 2% |
| Tuskfish Wrasse | Bluebarred Parrotfish | *Scarus ghobban spp complex* | 20% | 7% | 32% | 0% | 26% | 15% |
| Tuskfish Wrasse | Brownspotted Wrasse | *Notolabrus parilus* | 4% | 9% | 32% | 0% | 3% | 52% |
| Tuskfish Wrasse | Foxfish | *Bodianus frenchii* | 18% | 28% | 34% | 0% | 5% | 16% |
| Tuskfish Wrasse | Southern Maori Wrasse | *Ophthalmolepis lineolatus* | 16% | 11% | 38% | 0% | 0% | 35% |
| Tuskfish Wrasse | Western Blue Groper | *Achoerodus gouldii* | **40%** | **41%** | **5%** | 0% | **14%** | 0% |
| Tuskfish Wrasse | Western King Wrasse | *Coris auricularis* | 5% | 5% | 22% | 0% | 3% | 65% |
| Tuskfish Wrasse | Other Wrasse | *Labridae - undifferentiated* | 1% | 1% | 64% | 1% | 1% | 33% |
| Western Blue Devil | Western Blue Devil | *Paraplesiops sinclairi* | 5% | 7% | 46% | 0% | 1% | 41% |
| Whiting | King George Whiting | *Sillaginodes punctata* | 22% | 75% | 1% | 1% | 0% | 0% |
| Whiting | School Whiting | *Sillago schomburgkii, bassensis & vittata* | 45% | 33% | 11% | 2% | 8% | 1% |
| Finfish Other | Weeping Toadfish | *Torquigener pleurogramma* | 0% | 0% | 0% | 0% | 0% | 100% |
| Finfish Other | Other Toadfish | *Tetraodontidae - undifferentiated* | 0% | 0% | 5% | 0% | 0% | 95% |

# 6 Estimates of Catch for Key Species

This section presents estimates of boat-based recreational catch (kept, released and total, by number) for the 12-months from September 2017 to August 2018. Estimates are summarised by habitat, fishing method and month for key species.

Summaries are provided by bioregion, habitat, fishing method and season for priority species identified on the basis of reported catches and importance for management. Key Species have been allocated to habitat types according to the Resource Assessment Framework (RAF) (Department of Fisheries 2011). However, the following RAF indicator species were caught in low numbers and are not included in this section: Blue-eye Trevalla (*Hyperoglyphe antarctica*); Brownstripe Snapper (*Lutjanus vitta*); Perth Herring (*Nematalosa vlaminghi*); Pilchard (*Sardinops sagax*); Sandbar Shark (*Carcharhinus plumbeus*); Western Blue Groper (*Achoerodus gouldii*); Whiskery Shark (*Furgaleus macki*); Whitebait (*Hyperlophus vittatus*); and Silver Cobbler (*Neoarius midgleyi*).

Estimates of recreational catch for key species are presented by habitat type. This includes:

- 5 species/taxa for estuarine; Barramundi (*Lates calcarifer*), Black Bream (*Acanthopagrus butcheri*), Estuary Cobbler (*Cnidoglanis macrocephalus*), Southern Bluespotted Flathead (*Platycephalus speculator*) and Yellowtail Flathead (*Platycephalus westraliae*).
- 23 species/taxa for nearshore; Australian Herring (*Arripis georgianus*), Western Australian Salmon (*Arripis truttaceus*), Western Yellowfin Bream (*Acanthopagrus morrisoni*), Chinaman Rockcod (*Epinephelus rivulatus*), Grunters (*Pelsartia humeralis* & *Pelates octolineatus*), Garfish (*Hyporhamphus melanochir* and *Hemiramphus robustus*), Leatherjacket (Family Monacanthidae), Mullet (Family Mugilidae), Tailor (*Pomatomus saltatrix*), Western Butterfish (*Pentapodus vitta*), Blue Threadfin (*Eleutheronema tetradactylum*), King Threadfin (*Polydactylus macrochir*), Giant Trevally (*Caranx ignobilis*), Golden Trevally (*Gnathanodon speciosus*), Silver Trevally (*Pseudocaranx* spp. complex), Yellowtail Scad (*Trachurus novaezelandiae*), Mangrove Jack (*Lutjanus argentimaculatus*), Blue Mackerel (*Scomber australasicus*), Brownspotted Wrasse (*Notolabrus parilus*), Southern Maori Wrasse (*Ophthalmolepis lineolatus*), Western King Wrasse (*Coris auricularis*), King George Whiting (*Sillaginodes punctata*), School Whiting (*Sillago bassensis, vittata* and *schomburgkii*).
- 26 species/taxa for inshore demersal; Pink Snapper (*Chrysophrys auratus*), Bluespotted Emperor (*Lethrinus punctulatus*), Grass Emperor (*Lethrinus laticaudis*), Redthroat Emperor (*Lethrinus miniatus*), Spangled Emperor (*Lethrinus nebulosus*), Blackspotted Rockcod (*Epinephelus malabaricus*), Breaksea Cod (*Epinephelides armatus*), Coral Trout (*Plectropomus maculatus* and *P. leopardus*), Goldspotted Rockcod (*Epinephelus coioides*), Harlequin Fish (*Othos dentex*), Rankin Cod (*Epinephelus multinotatus*), Painted Sweetlips (*Diagramma labiosum*), Sergeant Baker (*Aulopus purpurissatus*), Blue Morwong (*Nemadactylus valenciennesi*), West Australian Dhufish (*Glaucosoma hebraicum*), Bight Redfish (*Centroberyx gerrardi*), Swallowtail (*Centroberyx lineatus*), Sea Sweep (*Scorpis aequipinnis*), Crimson Snapper (*Lutjanus erythropterus*), Goldband Snapper (*Pristipomoides*

*multidens*), Red Emperor (*Lutjanus sebae*), Stripey Snapper (*Lutjanus carponotatus*), Baldchin Groper (*Choerodon rubescens*), Blackspot Tuskfish (*Choerodon schoenleinii*), Blue Tuskfish (*Choerodon cyanodus*) and Foxfish (*Bodianus frenchii*).

- 3 species/taxa for offshore demersal; Eightbar Grouper (*Hyporthodus octofasciatus*), Ruby Snapper (*Etelis carbunculus*) and Hapuku (*Polyprion oxygeneios*).
- 11 species/taxa for pelagic; Billfish (Family Istiophoridae), Cobia (*Rachycentron canadum*), Samsonfish (*Seriola hippos*), Yellowtail Kingfish (*Seriola lalandi*), Grey Mackerel (*Scomberomorus semifasciatus*), School Mackerel (*Scomberomorus queenslandicus*), Shark Mackerel (*Grammatorcynus bicarinatus*), Spanish Mackerel (*Scomberomorus commerson*), Mackerel Tuna (*Euthynnus affinis*), Southern Bluefin Tuna (*Thunnus maccoyii*) and Yellowfin Tuna (*Thunnus albacares*).
- 4 species/taxa for sharks; Gummy Sharks (*Mustelus antarcticus* and *M. stevensi*), Port Jackson Shark (*Heterodontus portusjacksoni*), Whaler Sharks (Family Carcharhinidae) and Wobbegong (Family Orectolobidae).
- 3 species/taxa for crustaceans; Western Rock Lobster (*Panulirus cygnus*), Mud Crab (*Scylla olivacea* and *S. serrata*) and Blue Swimmer Crab (*Portunus armatus*).
- 1 species/taxa for molluscs; Abalone (*Haliotis* spp.).
- 3 species/taxa for cephalopods; Cuttlefish (Order Sepiidae), Squid (Order Teuthoidea) and Octopus (Order Octopodidae).

## 6.1 Estuarine

Estimates of catches for estuarine species will be underestimated because shore-based catches are not reported.

### 6.1.1 Barramundi (*Lates calcarifer*)

Barramundi is an indicator species in the North Coast bioregion. All boat-based recreational catches of Barramundi occurred in the North Coast (Figure 23c). The majority of catches were released (73%; Table 4, Figure 23a) and attributed to"Catch and Release" and "Under Size" (Table 6). Catches were taken predominantly from nearshore and estuary (Figure 23b) and freshwater (not shown). Most catches were taken by line fishing (Figure 23d). Barramundi were harvested throughout the year, with highest catches in spring, followed by autumn, winter and summer (Figure 23e). The estimated kept recreational catch of Barramundi in 2017/18 was similar with previous statewide surveys (Figure 23a) although the estimated released catch in 2017/18 was considerably lower than in 2013/14.

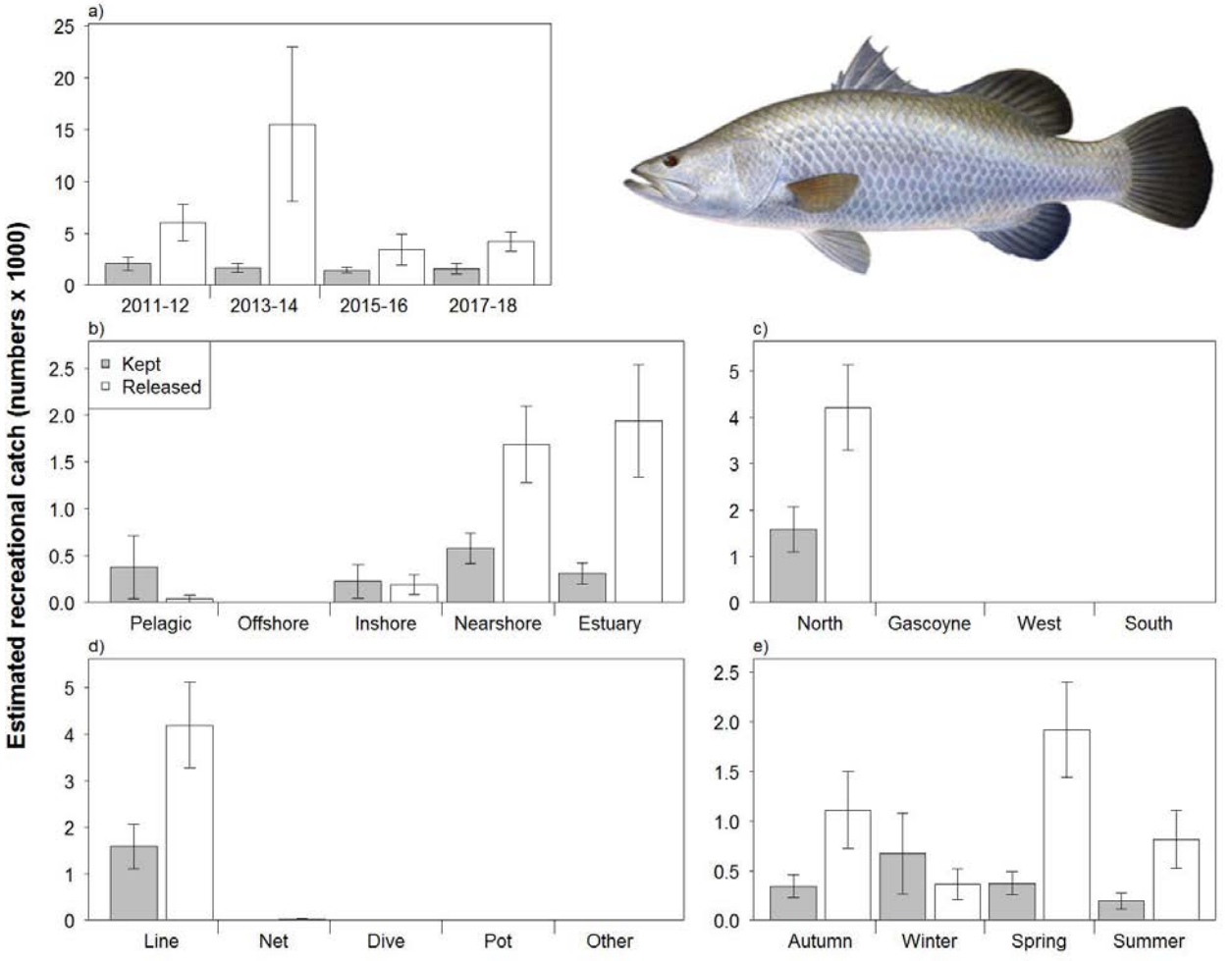


**Figure 23.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Barramundi in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.1.2 Black Bream (*Acanthopagrus butcheri*)

Black Bream is an indicator species in the West Coast and South Coast bioregions. Most boat-based recreational catches of Black Bream occurred in the South Coast, followed by the West Coast (Figure 24c). The majority of catches were released (80%; Table 4, Figure 24a) and attributed to "Under Size" and "Too Small" (Table 6). Catches were taken predominantly from estuary and nearshore (Figure 24b), and freshwater (not shown). Most catches were taken by line fishing (Figure 24d). Black Bream were harvested throughout the year, with higher catches in autumn and summer compared with spring and winter (Figure 24e). The estimated kept recreational catch of Black Bream in 2017/18 was higher compared with 2015/16, while the estimated released recreational catch was lower (Figure 24a).

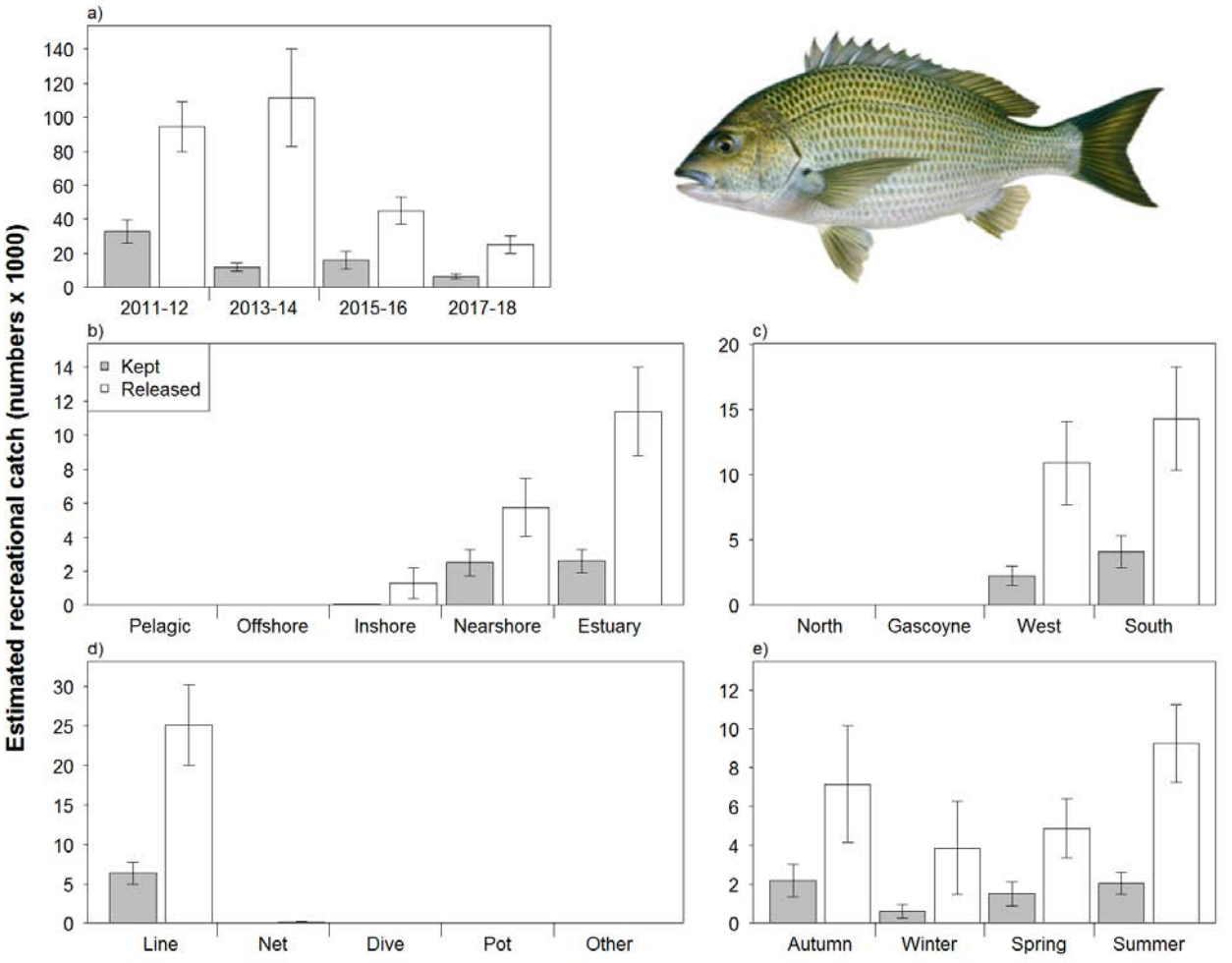


**Figure 24.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Black Bream in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.1.3 Estuary Cobbler (*Cnidoglanis macrocephalus*)

Estuary Cobbler is an indicator species in the West Coast and South Coast bioregions. Most boat-based recreational catches of Estuary Cobbler occurred in the West Coast, with some catches in the South Coast (Figure 25c). The majority of catches were retained (36% released; Table 4, Figure 25a). Catches were taken predominantly from estuary and nearshore (Figure 25b) and by line fishing, with some fishing from nets and pots (Figure 25d). Estuary Cobbler were mainly harvested in summer and autumn (Figure 25e). The estimated kept recreational catch of Estuary Cobbler in 2017/18 was lower compared with 2015/16, however, the catch estimates for this species have high uncertainty (Figure 25a).

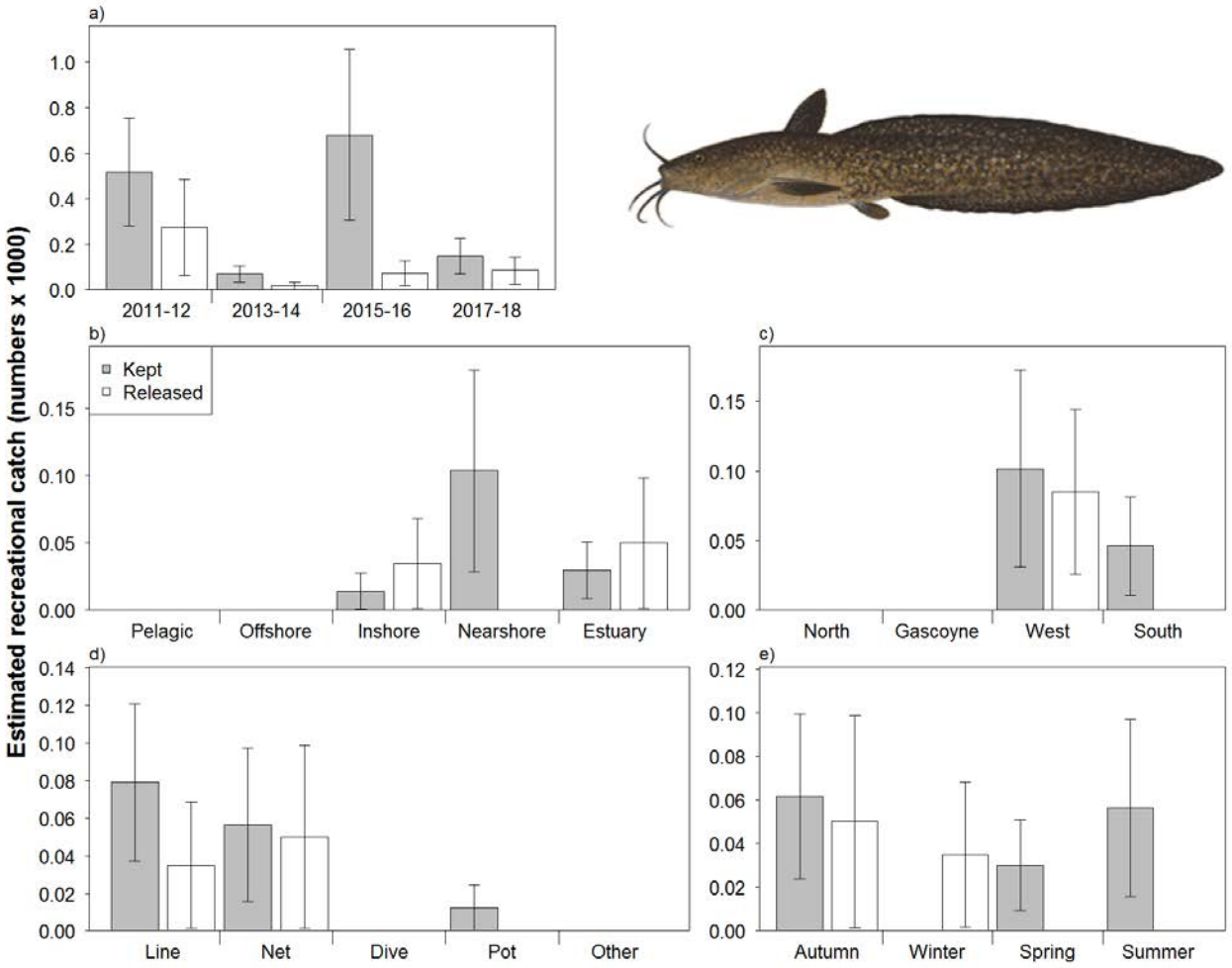


**Figure 25.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Estuary Cobbler in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.1.4 Southern Bluespotted Flathead (*Platycephalus speculator*)

Most boat-based recreational catches of Southern Bluespotted Flathead occurred in the West Coast, followed by the South Coast (Figure 26c). The majority of catches were released (78%; Table 4, Figure 26a) and attributed to "Under Size" and "Too Small" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 26b). All catches were taken by line fishing (Figure 26d). Southern Bluespotted Flathead were harvested throughout the year, with lower catches in winter (Figure 26e). The estimated kept recreational catch of Southern Bluespotted Flathead in 2017/18 was similar with previous statewide surveys, while the estimated released recreational catch was lower (Figure 26a).

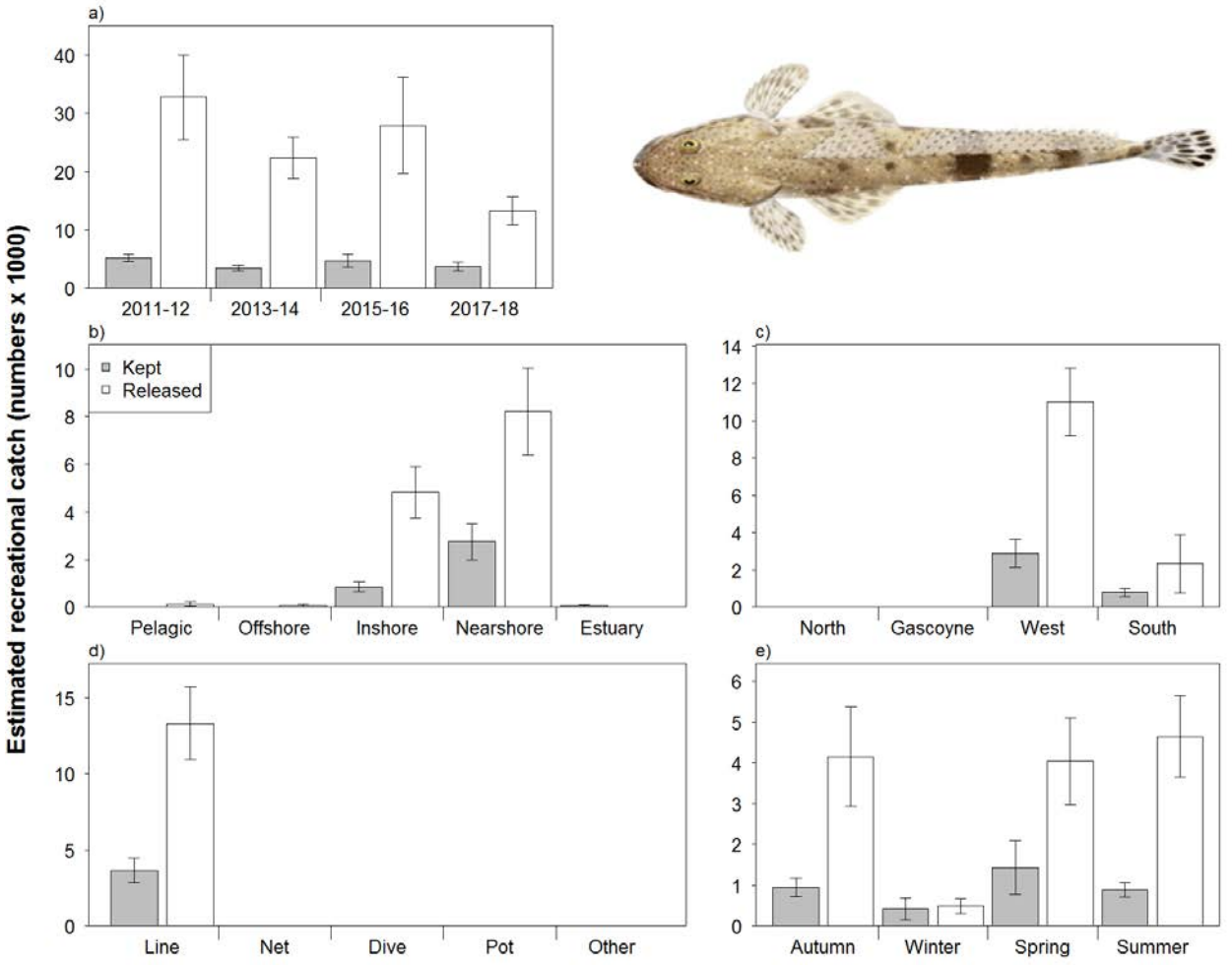


**Figure 26.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Southern Bluespotted Flathead in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.1.5 Yellowtail Flathead (*Platycephalus westraliae*)

Most boat-based recreational catches of Yellowtail Flathead occurred in the West Coast, with some catches in the Gascoyne Coast (Figure 27c). The majority of catches were released (91%; Table 4, Figure 27a) and attributed to "Under Size" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 27b). Most catches were taken by line fishing (Figure 27d). Yellowtail Flathead were harvested throughout the year, with higher catches in autumn, followed by summer, spring and winter (Figure 27e). The estimated kept and released recreational catches of Yellowtail Flathead in 2017/18 were similar with previous statewide surveys (Figure 27a).

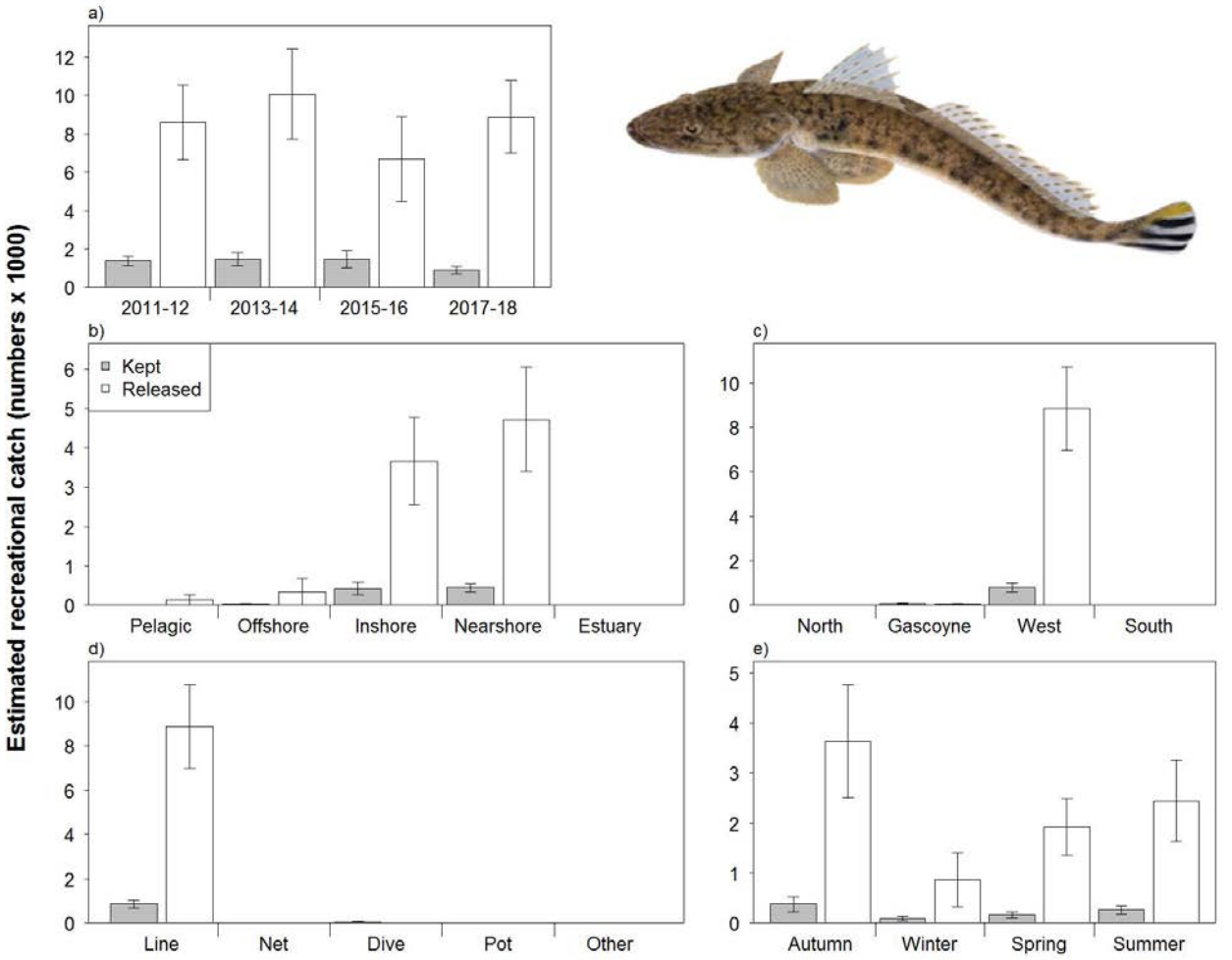


**Figure 27.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Yellowtail Flathead in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

## 6.2 Nearshore

Estimates of catch for nearshore species provided in this report will be underestimated, particularly those harvested by high proportions of shore-based recreational fishers.

### 6.2.1 Australian Herring (*Arripis georgianus*)

Australian Herring is an indicator species in the West Coast and South Coast bioregions. Most boat-based recreational catches of Australian Herring occurred in the West Coast, followed by the South Coast (Figure 28c). The majority of catches were retained (21% released; Table 4, Figure 28a) with most releases attributed to "Too Small" and "Under Size" (Table 6). Catches were predominantly taken from nearshore (Figure 28b) and by line fishing (Figure 28d). Australian Herring were harvested throughout the year, with higher catches in summer and autumn, followed by spring and winter (Figure 28e). The estimated kept recreational catch in 2017/18 was similar to 2015/16, but lower than 2011/12, while the released recreational catch in 2017/18 was similar with previous statewide surveys (Figure 28a).

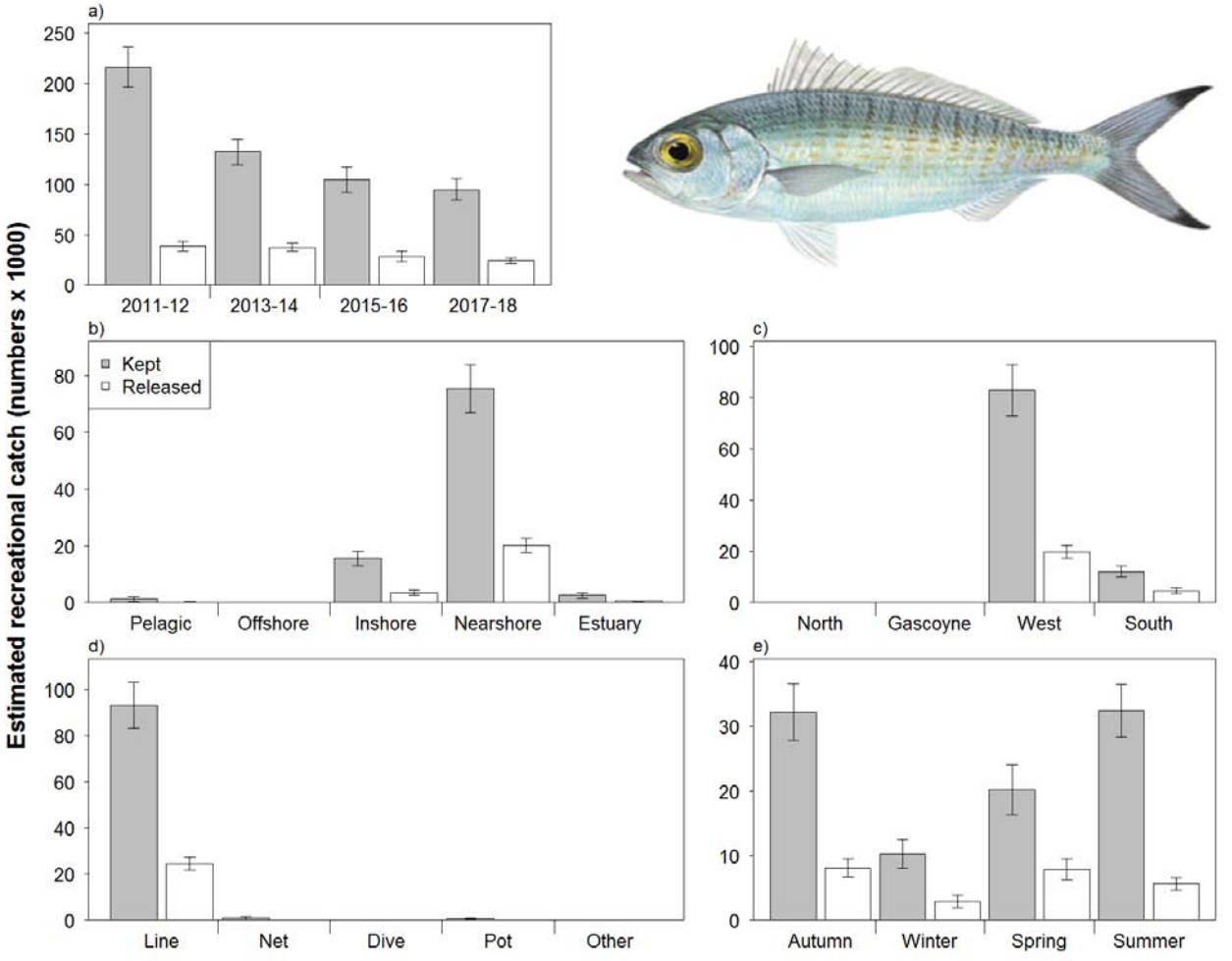


**Figure 28.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Australian Herring in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.2 Western Australian Salmon (*Arripis truttaceus*)

Western Australian Salmon is an indicator species in the South Coast bioregion. Most boat-based recreational catches of Western Australian Salmon occurred in the West Coast, followed by the South Coast (Figure 29c). The majority of catches were released (66%; Table 4, Figure 29a) and attributed to "Catch and Release" and "Too Many" (Table 6). Catches were taken predominantly from nearshore (Figure 29b) and by line fishing (Figure 29d). The majority of catches were in autumn (Figure 29e). The estimated kept and released recreational catches of Western Australian Salmon was lower in 2017/18 compared with 2015/16 (Figure 29a).

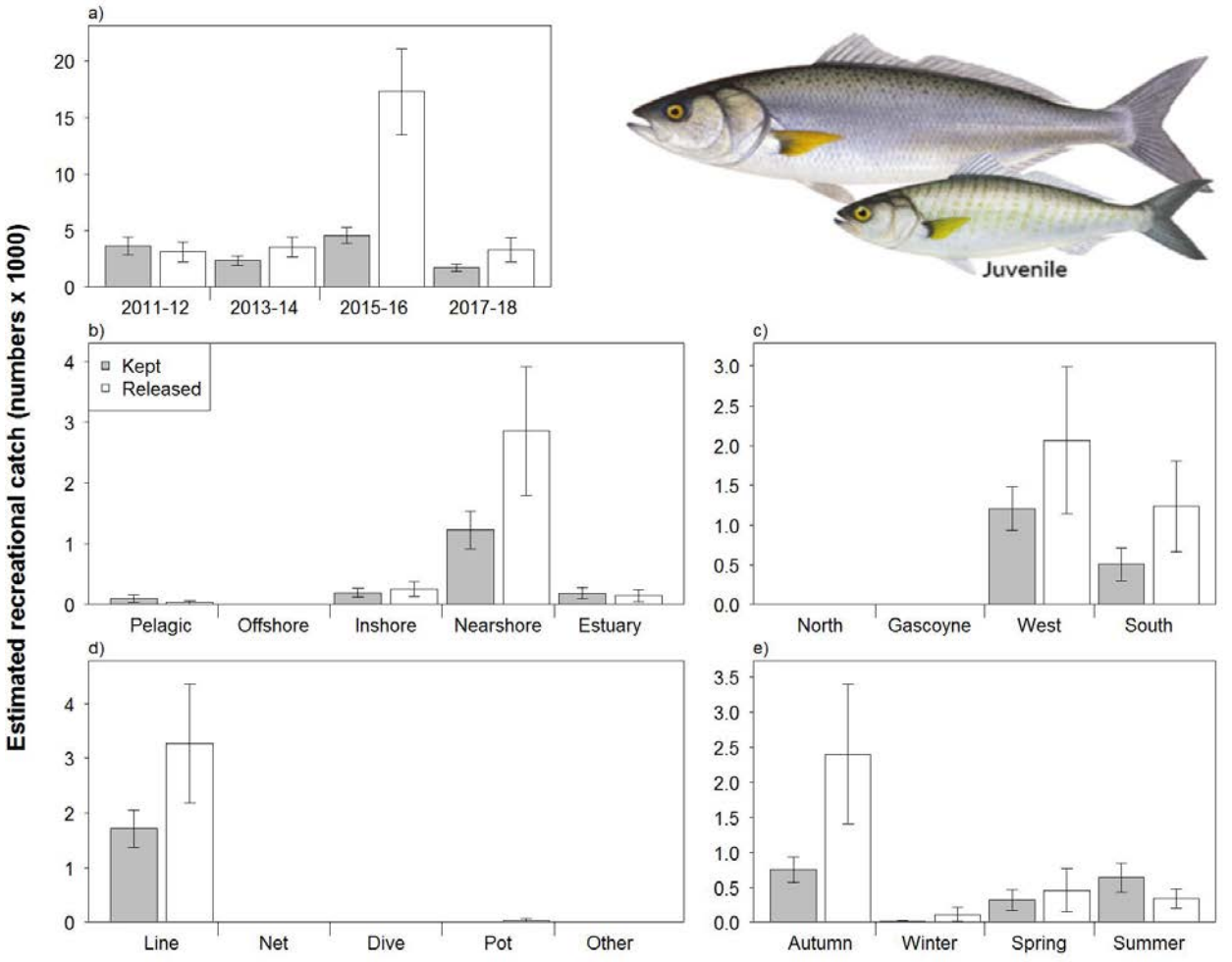


**Figure 29.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Western Australian Salmon in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.3 Western Yellowfin Bream (*Acanthopagrus morrisoni*)

Most boat-based recreational catches of Western Yellowfin Bream occurred in the Gascoyne Coast, with some catches in the North Coast (Figure 30c). The majority of catches were retained (45% released; Table 5, Figure 30a). Catches were taken predominantly from nearshore and inshore demersal (Figure 30b). Most catches were taken by line fishing (Figure 30d). The majority of catches were in winter (Figure 30e). The estimated kept recreational catch of Western Yellowfin Bream in 2017/18 was higher compared with previous statewide surveys, however, the catch estimates for this species have high uncertainty (Figure 30a).

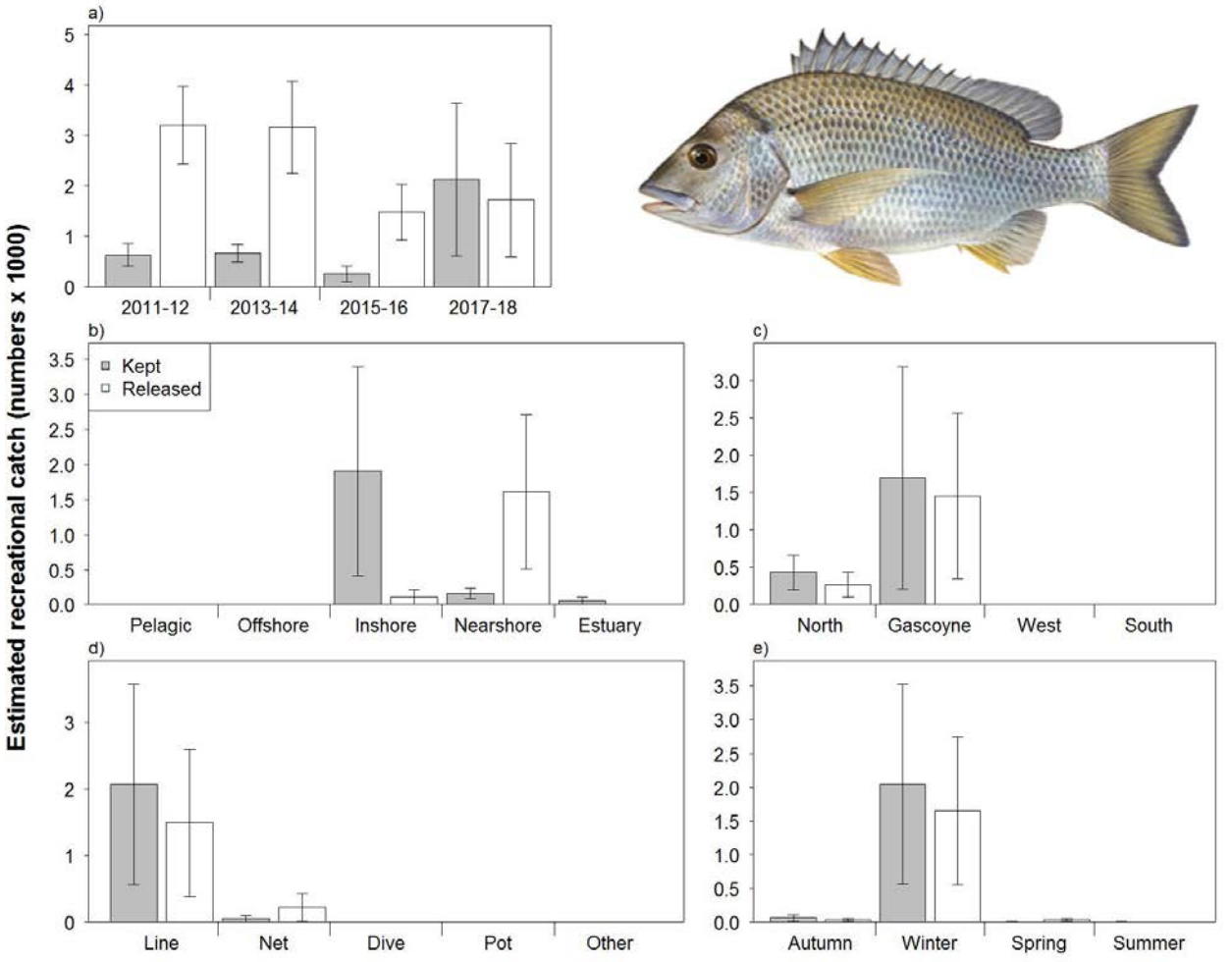


**Figure 30.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Western Yellowfin Bream in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.4 Chinaman Rockcod (*Epinephelus rivulatus*)

Most boat-based recreational catches of Chinaman Rockcod occurred in the Gascoyne Coast, with some catches in the West Coast and North Coast (Figure 31c). Similar proportions of the boat-based recreational catch were kept and released (53% released; Table 4, Figure 31a) with most releases attributed to “Under Size” and "Too Small" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 31b). Most catches were taken by line fishing (Figure 31d). Chinaman Rockcod were mostly harvested in winter and spring (Figure 31e). The estimated kept recreational catch of Chinaman Rockcod in 2017/18 was higher compared with previous statewide surveys (Figure 31a).

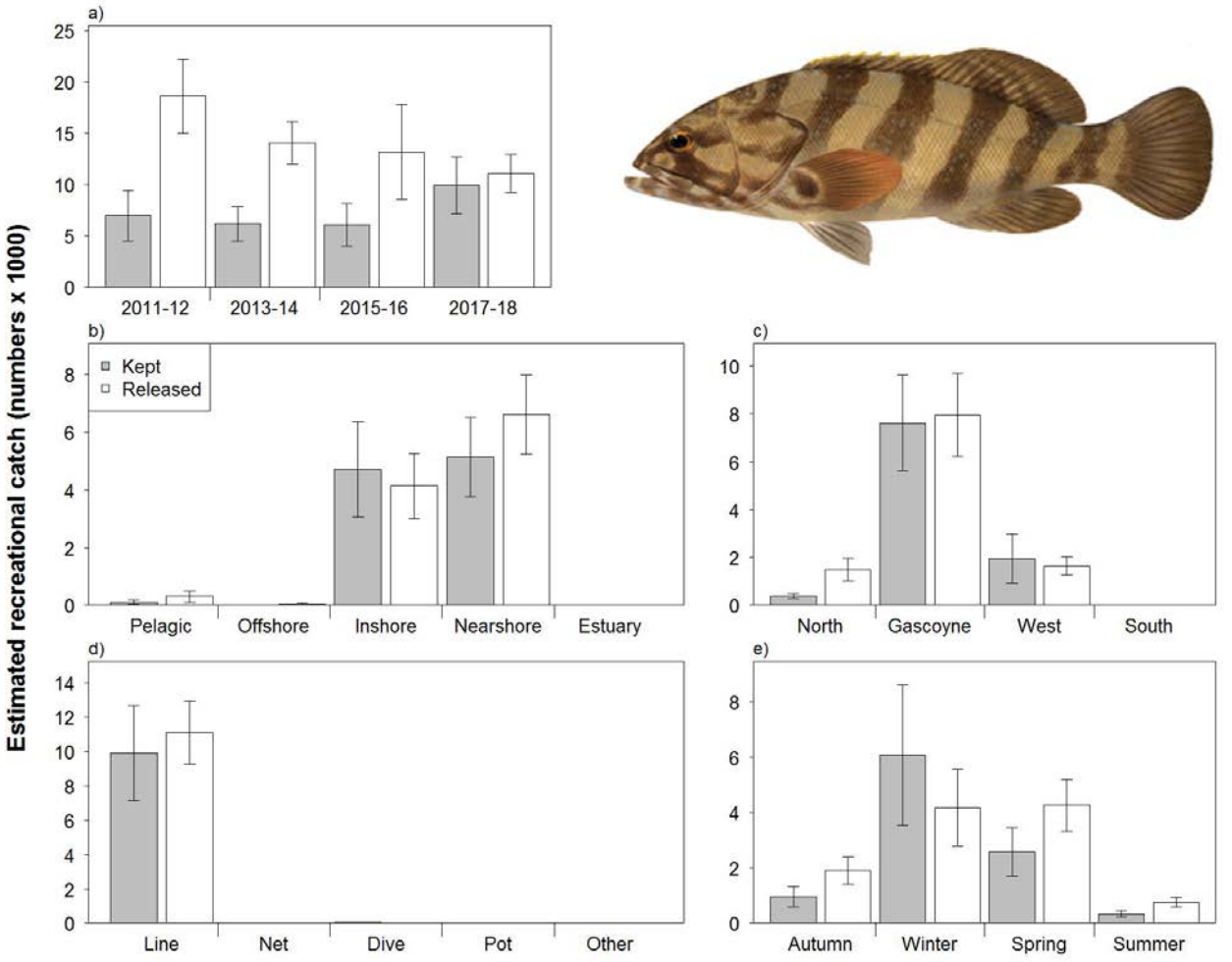


**Figure 31.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Chinaman Rockcod in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.5 Grunters (*Pelsartia humeralis* and *Pelates octolineatus*)

Grunter species include Sea Trumpeter (*Pelsartia humeralis*) and Western Striped Grunter (*Pelates octolineatus*). Most boat-based recreational catches of Grunter occurred in the West Coast, with some catches in the South Coast (Figure 32c). The majority of catches were released (95%; Table 4, Figure 32a) with most releases attributed to "Other" (Table 6). Catches were taken predominantly from nearshore (Figure 32b). All catches were taken by line fishing (Figure 32d). Grunter were caught throughout the year (Figure 32e). The estimated kept and released recreational catches of Grunter in 2017/18 were similar with previous statewide surveys (Figure 32a).

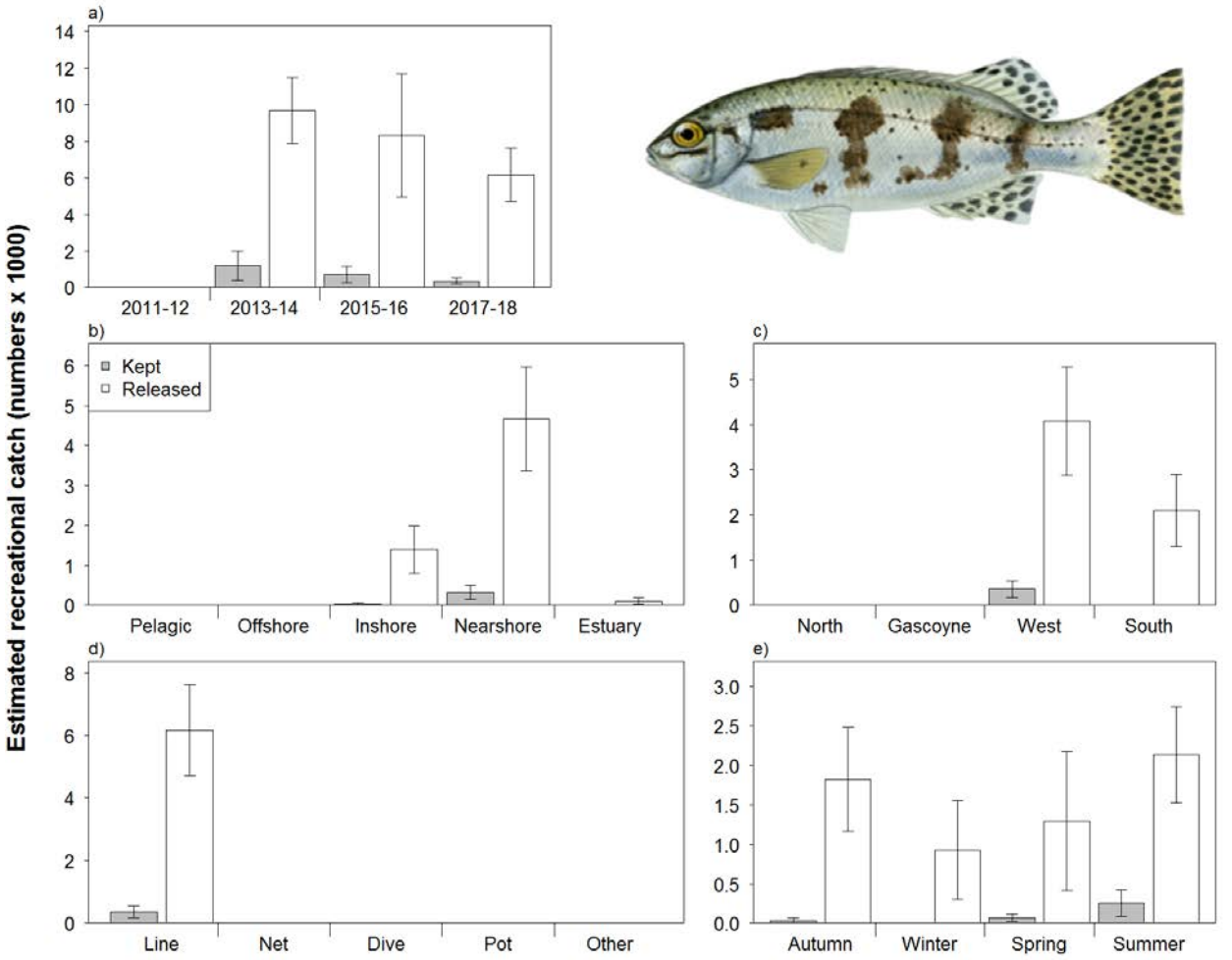


**Figure 32.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Grunter in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.6 Garfish (*Hyporhamphus melanochir* and *Hemiramphus robustus*)

Garfish is an indicator species in the West Coast bioregion. Reporting for this species includes Southern Garfish (*Hyporhamphus melanochir*), three-by-two Garfish (*Hemiramphus robustus*) and Other Garfish (Hemiramphidae - undifferentiated). A spatial closure for southern garfish in Metro Zone commenced in 2017. Most boat-based recreational catches of Garfish occurred in the West Coast, with some catches in the Gascoyne Coast and South Coast (Figure 33c). Similar proportions of the boat-based recreational catch were kept and released (52% released; Table 4, Figure 33a). Catches were taken predominantly from nearshore (Figure 33b). Most catches were taken by line fishing (Figure 33d). Garfish were mostly harvested in autumn and winter (Figure 33e). The estimated kept recreational catch of Garfish in 2017/18 was similar to 2015/16, but lower than 2011/12, however, the catch estimates for this species have high uncertainty (Figure 33a).

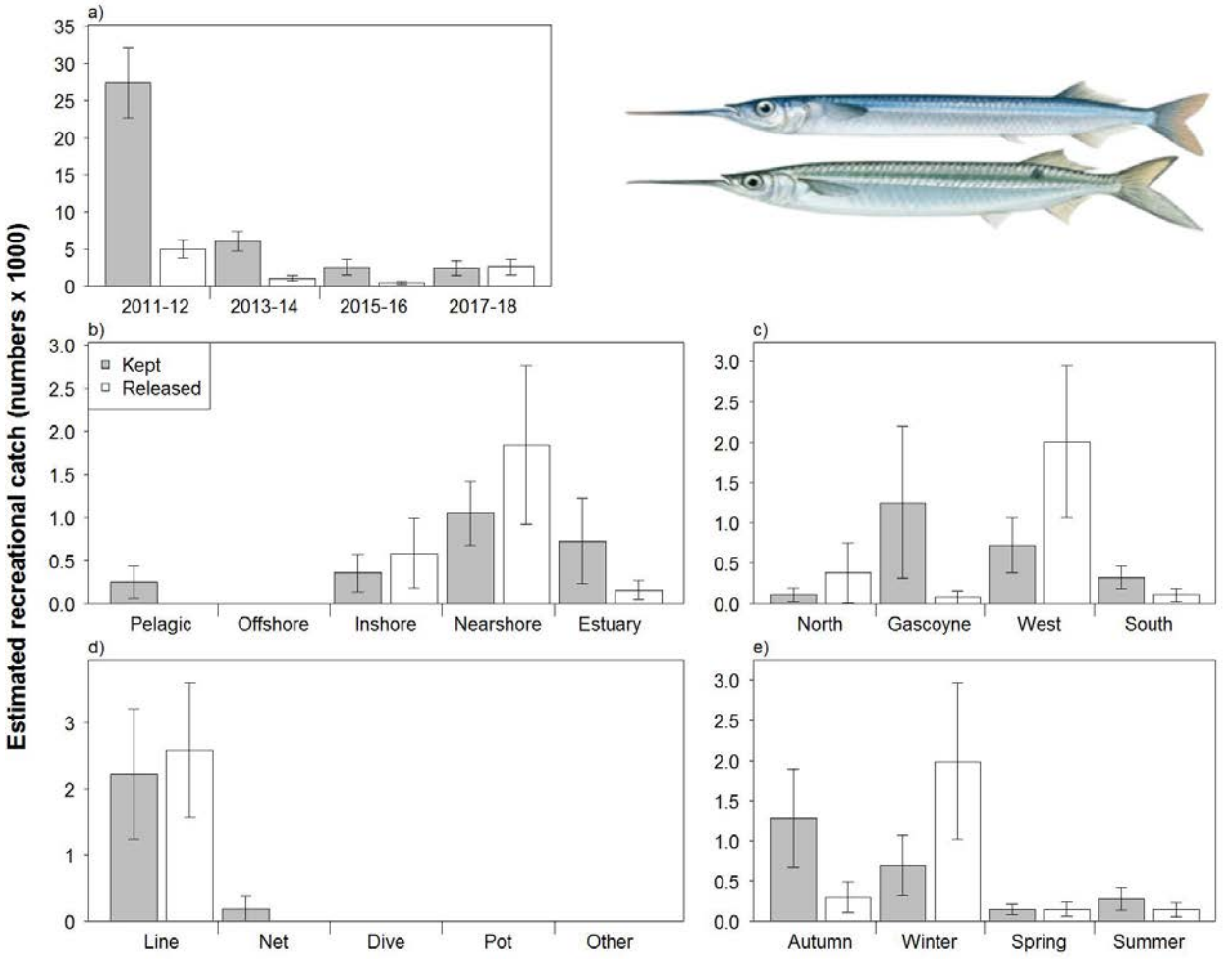


**Figure 33.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Garfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.7 Leatherjacket (Family Monacanthidae)

Leatherjacket species include Horseshoe Leatherjacket (*Meuschenia hippocrepis*), Sixspine Leatherjacket (*Meuschenia freycineti*) and Other Leatherjackets (Monacanthidae - undifferentiated). Most boat-based recreational catches of Leatherjacket occurred in the West Coast and South Coast (Figure 34c). The majority of catches were released (81%; Table 4, Figure 34a) with most releases attributed to “Other” and "Too Many" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 34b). Most catches were taken by line fishing (Figure 34d). Leatherjacket were harvested throughout the year, with higher catches in spring (Figure 34e). The estimated kept recreational catch of Leatherjacket in 2017/18 was similar with previous statewide surveys (Figure 34a).

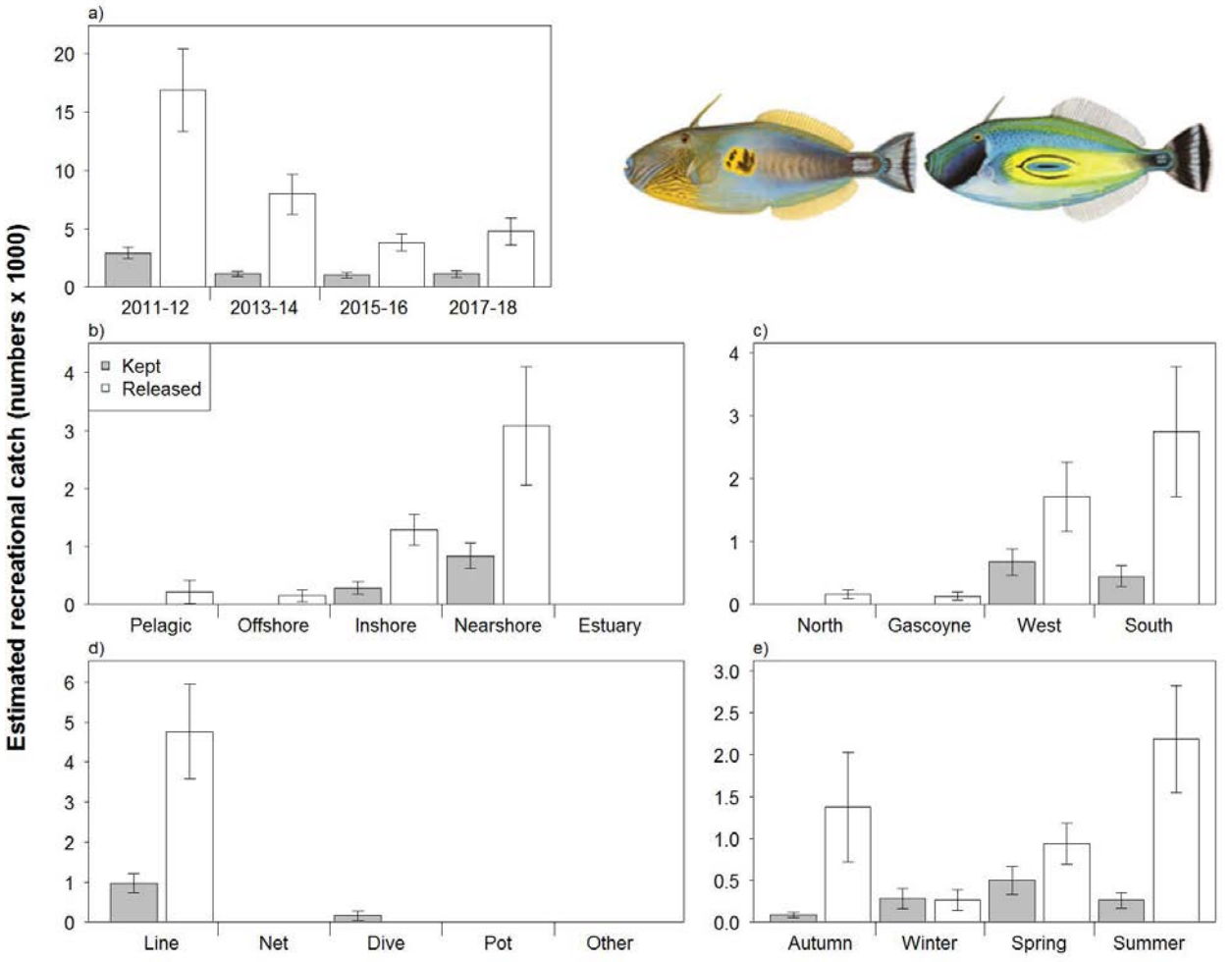


**Figure 34.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Leatherjacket in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.8 Mullet (Family Mugilidae)

Mullet species include Sea Mullet (*Mugil cephalus*), Bluetail Mullet (*Valamugil buchanani*), Diamondscale Mullet (*Liza vaigiensis*), Greenback Mullet (*Liza subviridis*), Yelloweye Mullet (*Aldrichetta forsteri*) and Other Mullets (Mugilidae - undifferentiated). Sea Mullet is an indicator species in the Gascoyne, West and South Coast bioregions. Most boat-based recreational catches of Mullet occurred in the West Coast, with some catches in the North Coast, Gascoyne Coast and South Coast (Figure 35c). The majority of catches were retained (10% released; Table 4, Figure 35a). Catches were taken predominantly from nearshore (Figure 35b). Catches were mostly taken by netting, followed by potting and line fishing (Figure 35d). Mullet were harvested throughout the year, with higher catches in summer and autumn compared with winter and spring (Figure 35e). The estimated kept and released recreational catches of Mullet in 2017/18 were similar with previous statewide surveys, however, the catch estimates for this species have high uncertainty (Figure 35a).

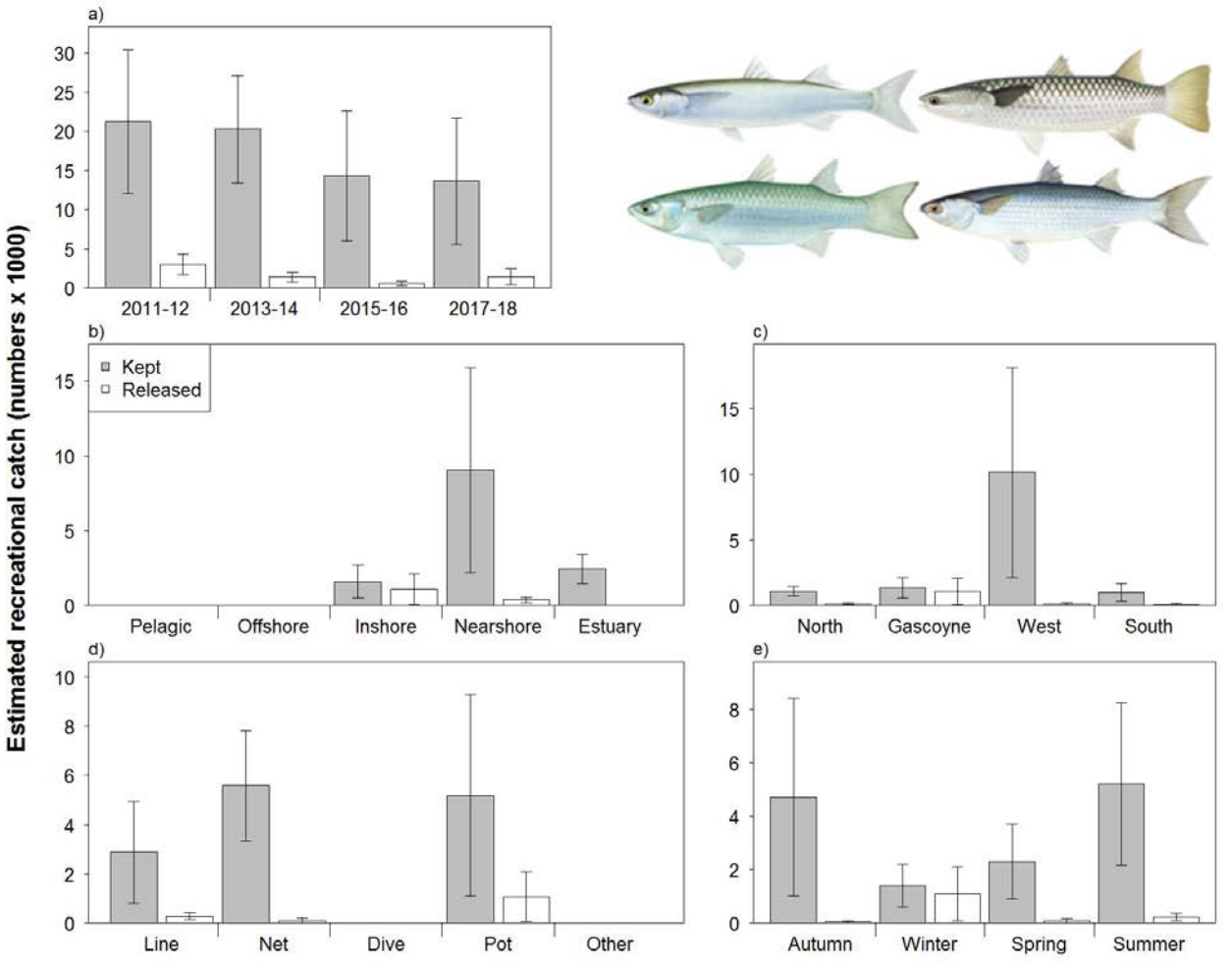


**Figure 35.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Mullet in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.9 Tailor (*Pomatomus saltatrix*)

Tailor is an indicator species in the Gascoyne Coast and West Coast bioregions. Most boat-based recreational catches of Tailor occurred in the West Coast, with some catches in the Gascoyne Coast and South Coast (Figure 36c). The majority of catches were released (61%; Table 4, Figure 36a) with most releases attributed to "Under Size" and "Catch and Release" (Table 6). Catches were taken predominantly from nearshore (Figure 36b). Catches were mostly taken by line fishing (Figure 36d). Tailor were mostly harvested in spring and summer (Figure 36e). The estimated kept and released recreational catches of Tailor in 2017/18 were similar to 2015/16 and 2013/14, but lower than 2011/12 (Figure 36a).

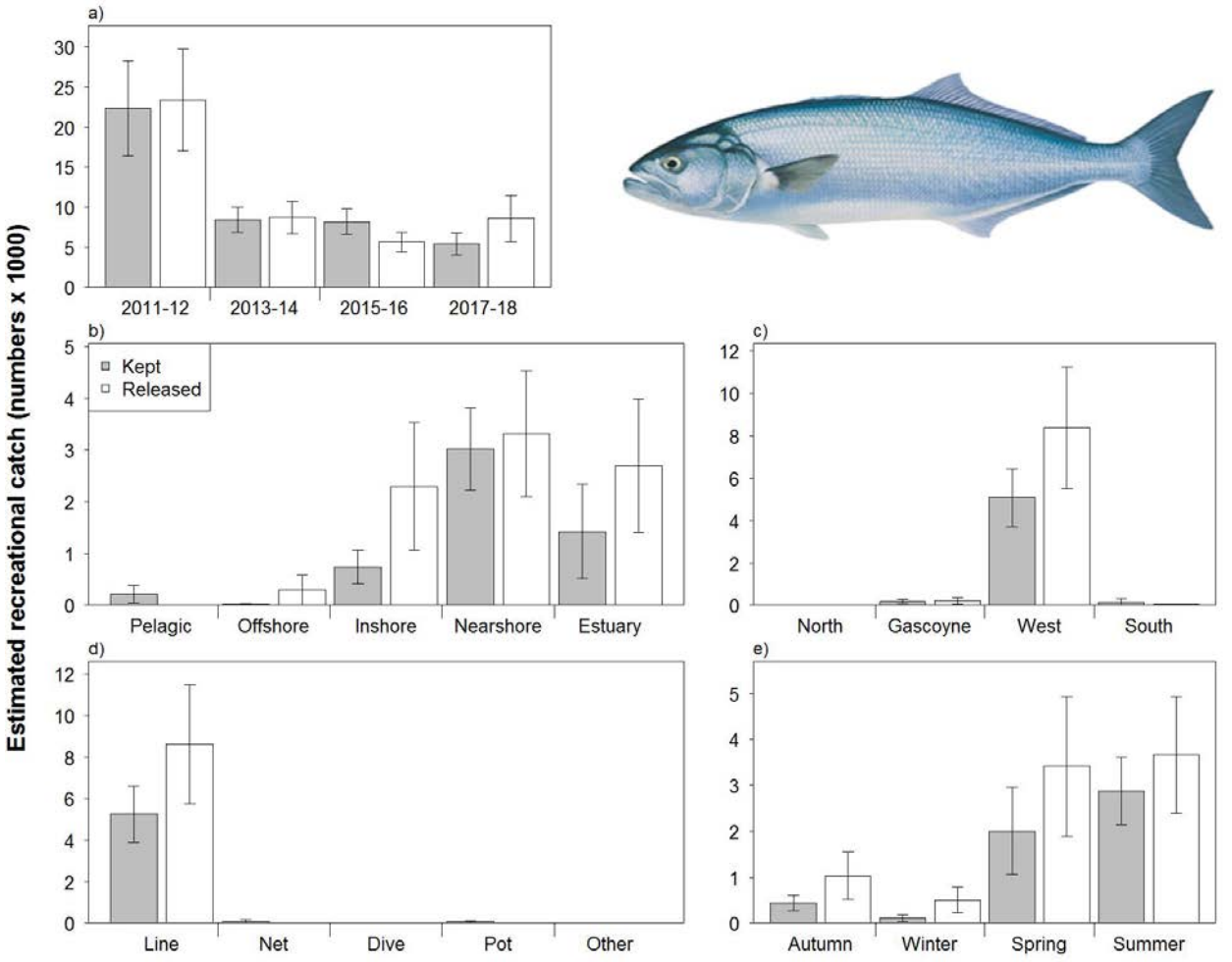


**Figure 36.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Tailor in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.10 Western Butterfish (*Pentapodus vitta*)

Most boat-based recreational catches of Western Butterfish occurred in the West Coast, with some catches in the Gascoyne Coast (Figure 37c). The majority of catches were released (79%; Table 5, Figure 37a) with most releases attributed to "Other" and "Too Many" (Table 6). Catches were taken predominantly from nearshore (Figure 37b). All catches were taken by line fishing (Figure 37d). Western Butterfish were harvested throughout the year, with higher catches in spring, summer and autumn (Figure 37e). The estimated kept and released recreational catches of Western Butterfish in 2017/18 were similar with previous statewide surveys (Figure 37a).

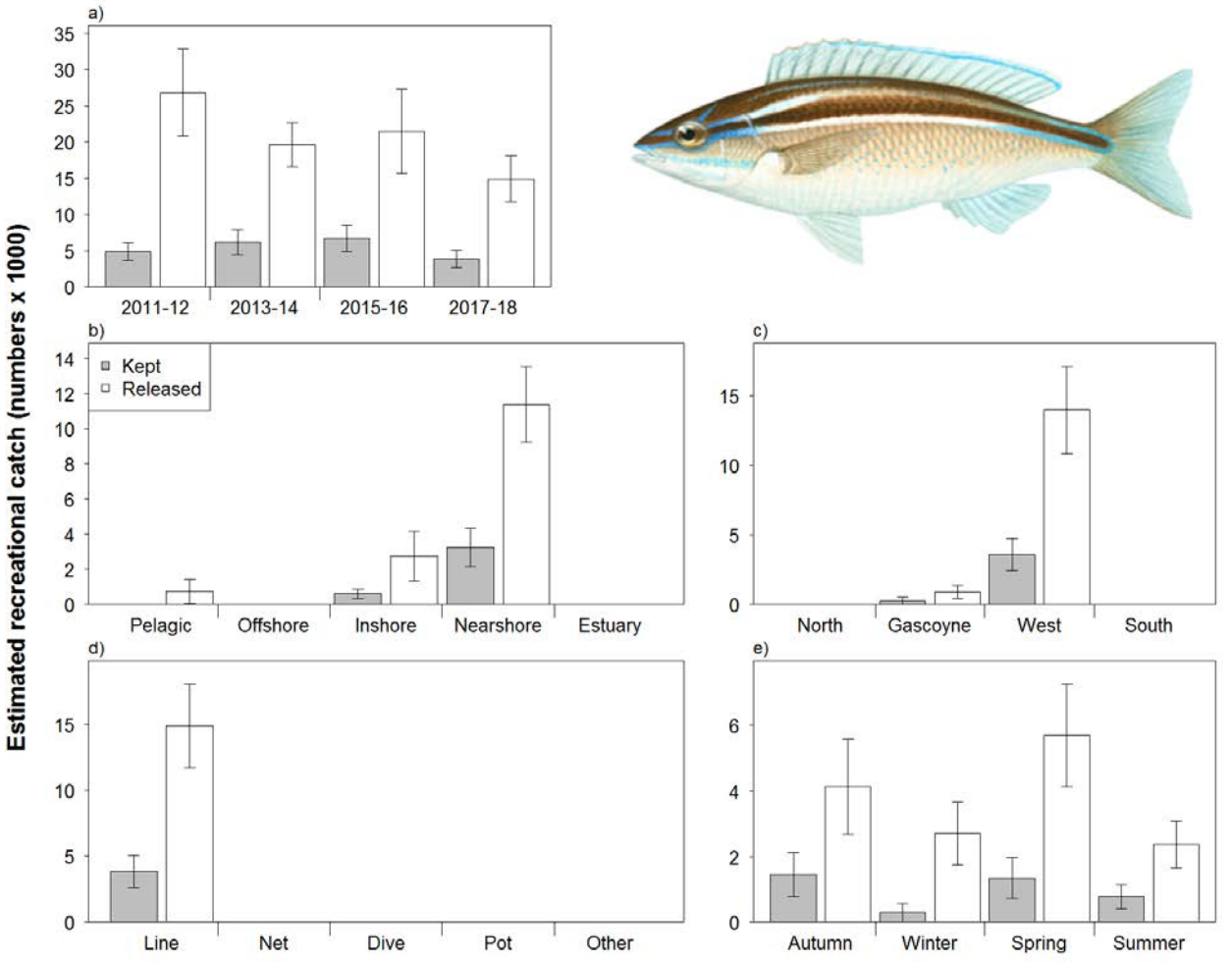


**Figure 37.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Western Butterfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.11 Blue Threadfin (*Eleutheronema tetradactylum*)

Blue Threadfin is an indicator species in the North Coast bioregion. Reporting for this species includes catches for Striped threadfin (*Polydatylus plebius*). Most boat-based recreational catches of Blue Threadfin occurred in the North Coast (Figure 38c). Similar proportions of the boat-based recreational catch were kept and released (48% released; Table 4, Figure 38a) with most releases attributed to “Too Many” and "Under Size" (Table 6). Catches were taken from nearshore, inshore demersal and estuary (Figure 38b). Most catches were taken by line fishing (Figure 38d). Blue Threadfin were mostly harvested in autumn, winter and spring (Figure 38e). The estimated kept and released recreational catches of Blue Threadfin in 2017/18 were similar with previous statewide surveys (Figure 38a).

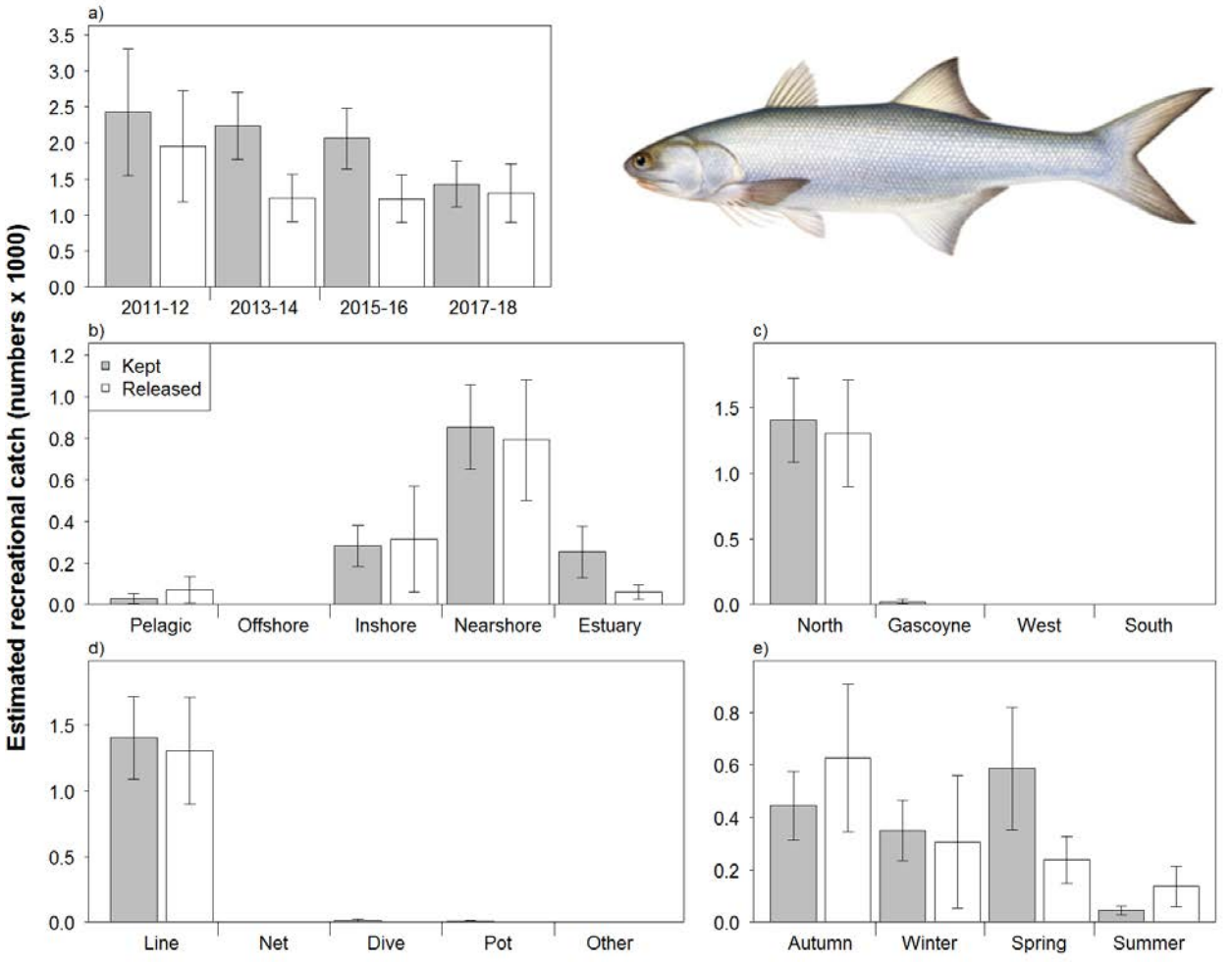


**Figure 38.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Blue Threadfin in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.12 King Threadfin (*Polydactylus macrochir*)

King Threadfin is an indicator species in the North Coast bioregion. All boat-based recreational catches of King Threadfin occurred in the North Coast (Figure 39c). The majority of released were attributed to "Under Size" (Table 6). Catches were taken predominantly from nearshore (Figure 39b). King Threadfin were harvested throughout the year, with higher catches in summer and autumn compared with winter and spring (Figure 39e). All catches were taken by line fishing (Figure 39d). The estimated kept recreational catch of King Threadfin in 2017/18 was lower compared with 2015/16, but similar with 2013/14 and 2011/12 (Figure 39a).

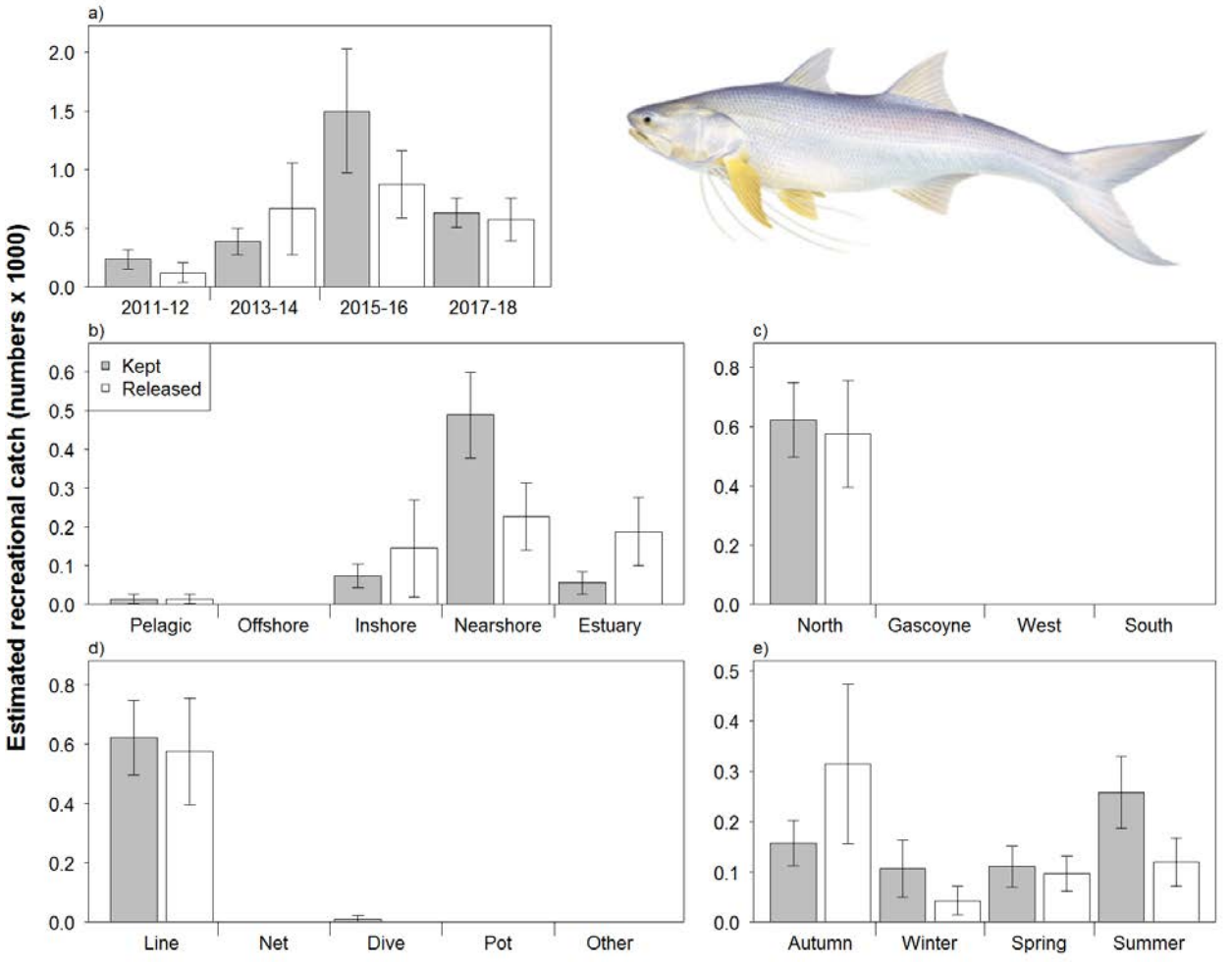


**Figure 39.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of King Threadfin in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.13 Giant Trevally (*Caranx ignobilis*)

Most boat-based recreational catches of Giant Trevally occurred in the North Coast and Gascoyne Coast, with some catches in the West Coast (Figure 40c). The majority of catches were released (87%; Table 4, Figure 40a) with most releases attributed to "Catch and Release" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 40b). Most catches were taken by line fishing (Figure 40d). Giant Trevally were harvested throughout the year (Figure 40e). The estimated kept and released recreational catches of Giant Trevally in 2017/18 were similar with previous statewide surveys (Figure 40a).

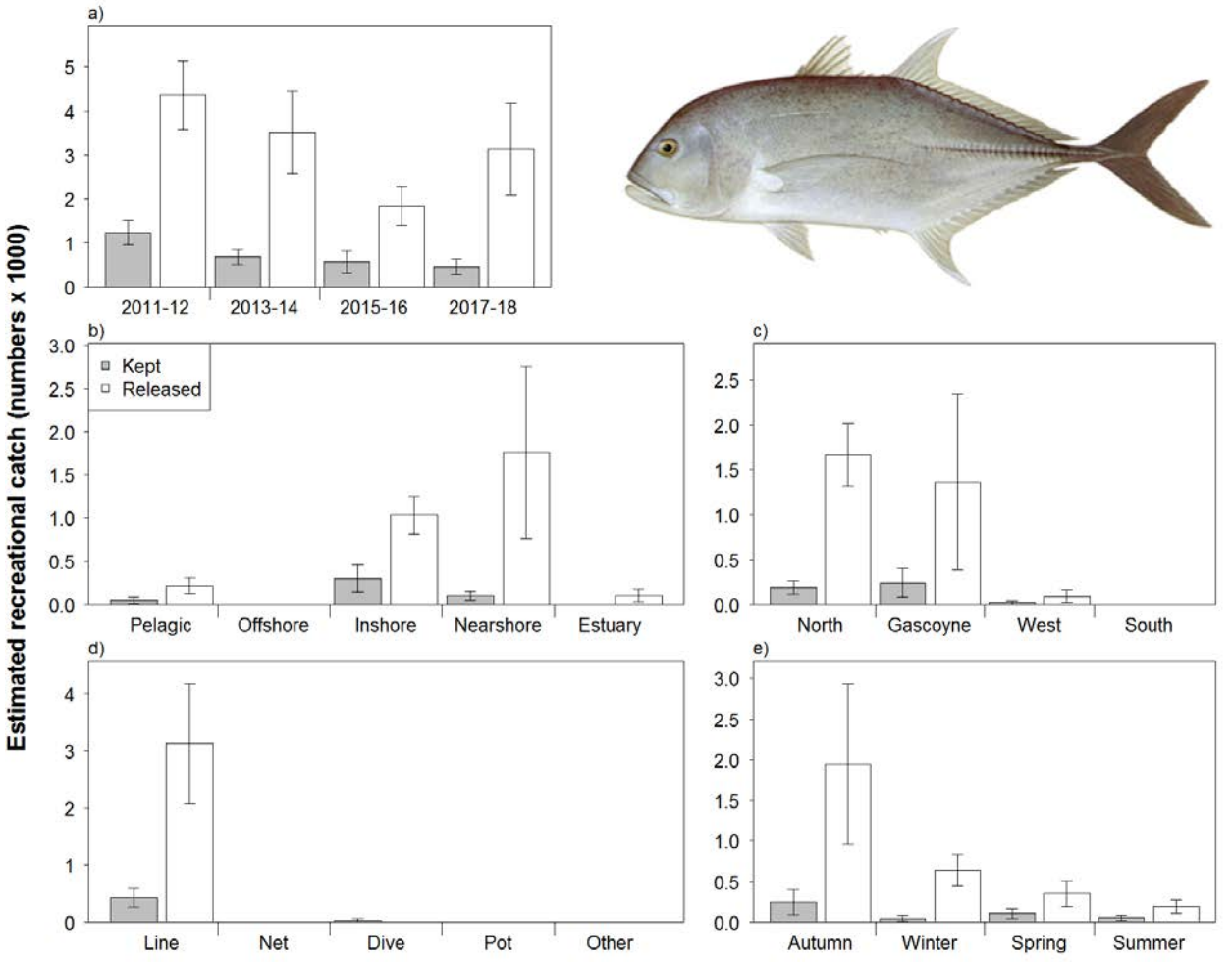


**Figure 40.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Golden Trevally in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.14 Golden Trevally (*Gnathanodon speciosus*)

Most boat-based recreational catches of Golden Trevally occurred in the North Coast, with some catches in the Gascoyne Coast and West Coast (Figure 41c). The majority of catches were released (71%; Table 4, Figure 41a) with most releases attributed to "Catch and Release" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 41b). Most catches were taken by line fishing (Figure 41d). Golden Trevally were mostly harvested in autumn and winter (Figure 41e). The estimated kept recreational catch of Golden Trevally in 2017/18 was similar with previous statewide surveys (Figure 41a).

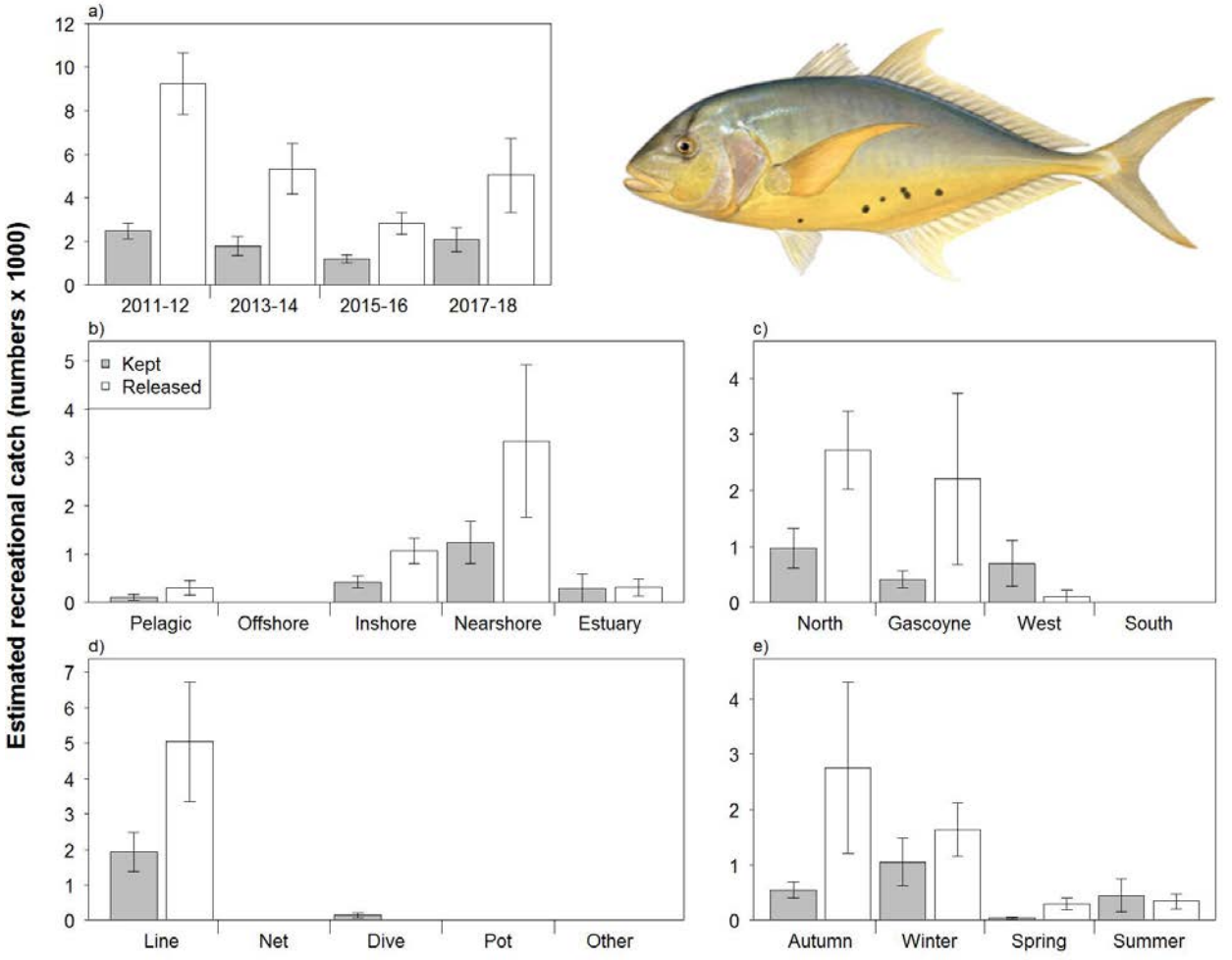


**Figure 41.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Golden Trevally in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.15 Silver Trevally (*Pseudocaranx* spp. complex)

Most boat-based recreational catches of Silver Trevally occurred in the West Coast, with some catches in the South Coast (Figure 42c). The majority of catches were retained (44% released; Table 5, Figure 42a) with most releases attributed to "Under Size" and "Too Small" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 42b). Silver Trevally were harvested throughout the year, with similar catches in each season (Figure 42e). Catches were mostly taken by line fishing (Figure 42d). The estimated kept and released recreational catches of Silver Trevally in 2017/18 were similar to 2015/16 and 2013/14, but lower than 2011/12 (Figure 42a).

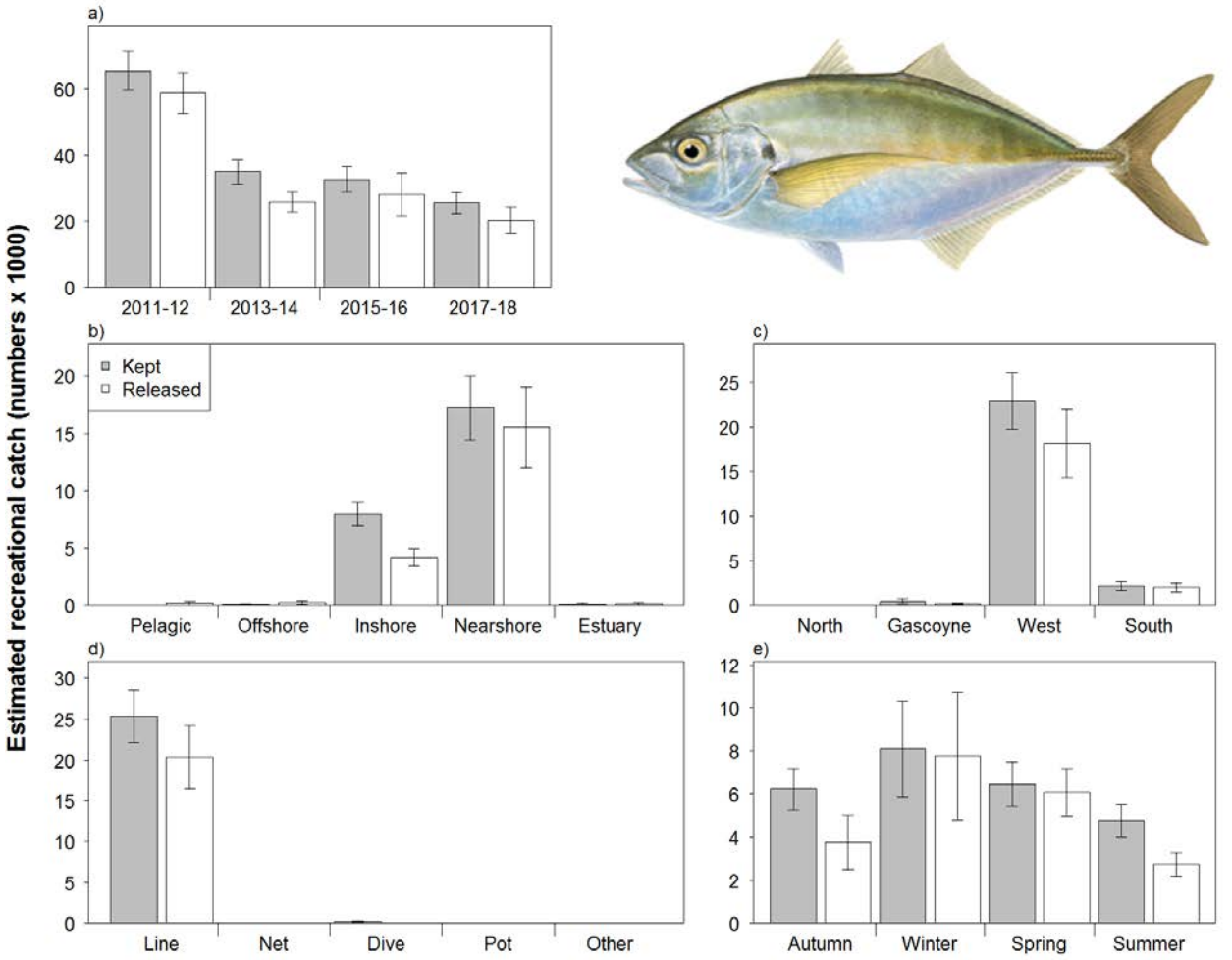


**Figure 42.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Silver Trevally in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.16 Yellowtail Scad (*Trachurus novaezelandiae*)

Yellowtail Scad is an indicator species in the South Coast bioregion. Most boat-based recreational catches of Yellowtail Scad occurred in the West Coast and South Coast (Figure 43c). The majority of catches were retained (41% released; Table 4, Figure 43a). Catches were taken predominantly from nearshore and inshore demersal (Figure 43b). All catches were taken by line fishing (Figure 43d). Yellowtail Scad were mostly harvested in summer and autumn (Figure 43e). The estimated kept recreational catch of Yellowtail Scad in 2017/18 was similar with previous statewide surveys; however, the catch estimates for this species have high uncertainty (Figure 43a).

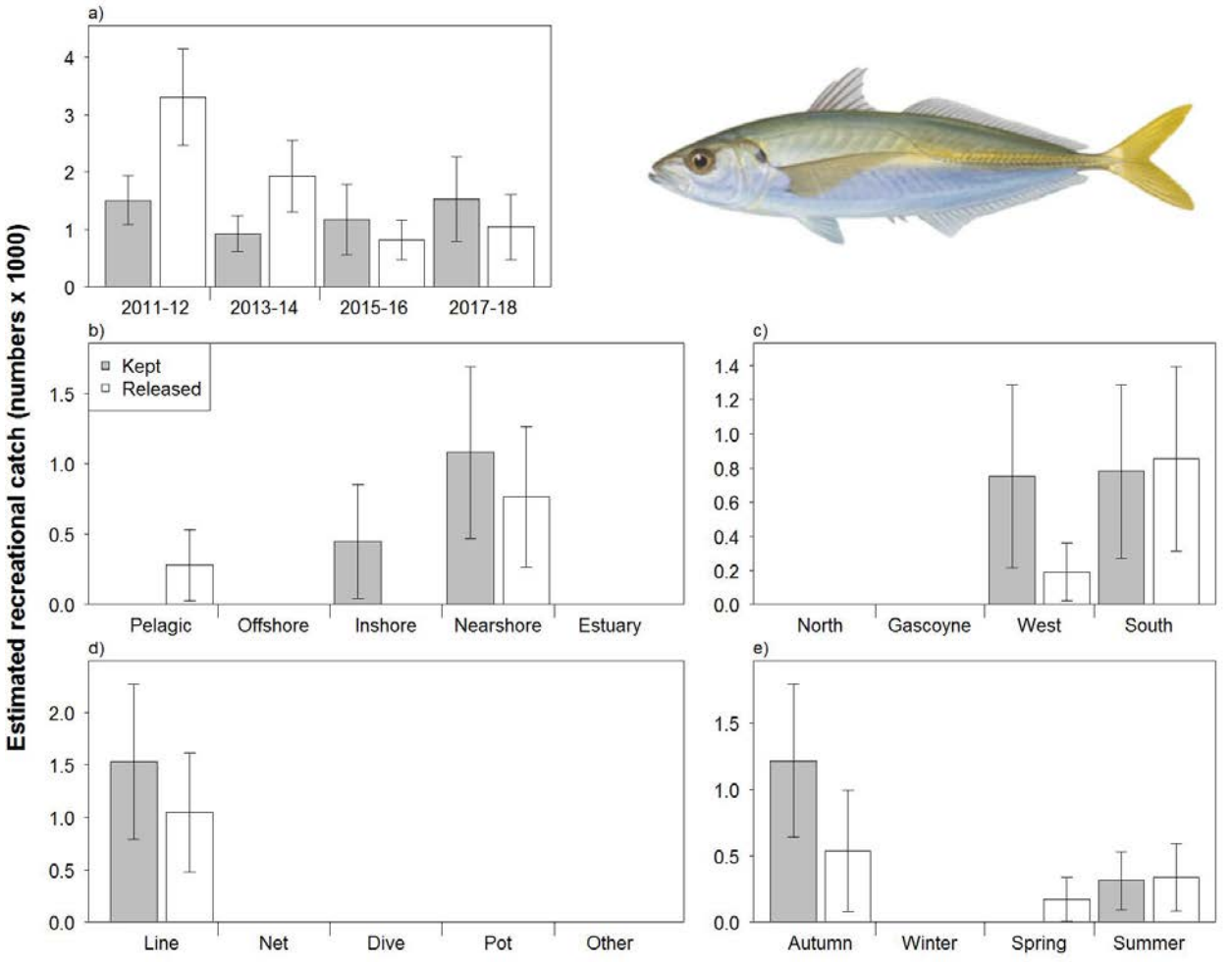


**Figure 43.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Yellowtail Scad in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.17 Mangrove Jack (*Lutjanus argentimaculatus*)

Mangrove Jack is an indicator species in the North Coast bioregion. Most boat-based recreational catches of Mangrove Jack occurred in the North Coast, with some catches in the Gascoyne Coast (Figure 44c). Similar proportions of the boat-based recreational catch were kept and released (53% released; Table 5, Figure 44a) with most releases attributed to "Under Size" and "Too Small" (Table 6). Catches were taken predominantly from nearshore, inshore demersal and estuary (Figure 44b). Most catches were taken by line fishing Figure 44d). Mangrove Jack were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 44e). The estimated kept and released recreational catches of Mangrove Jack in 2017/18 were similar to 2015/16, but lower than 2013/14 and 2011/12 (Figure 44a).

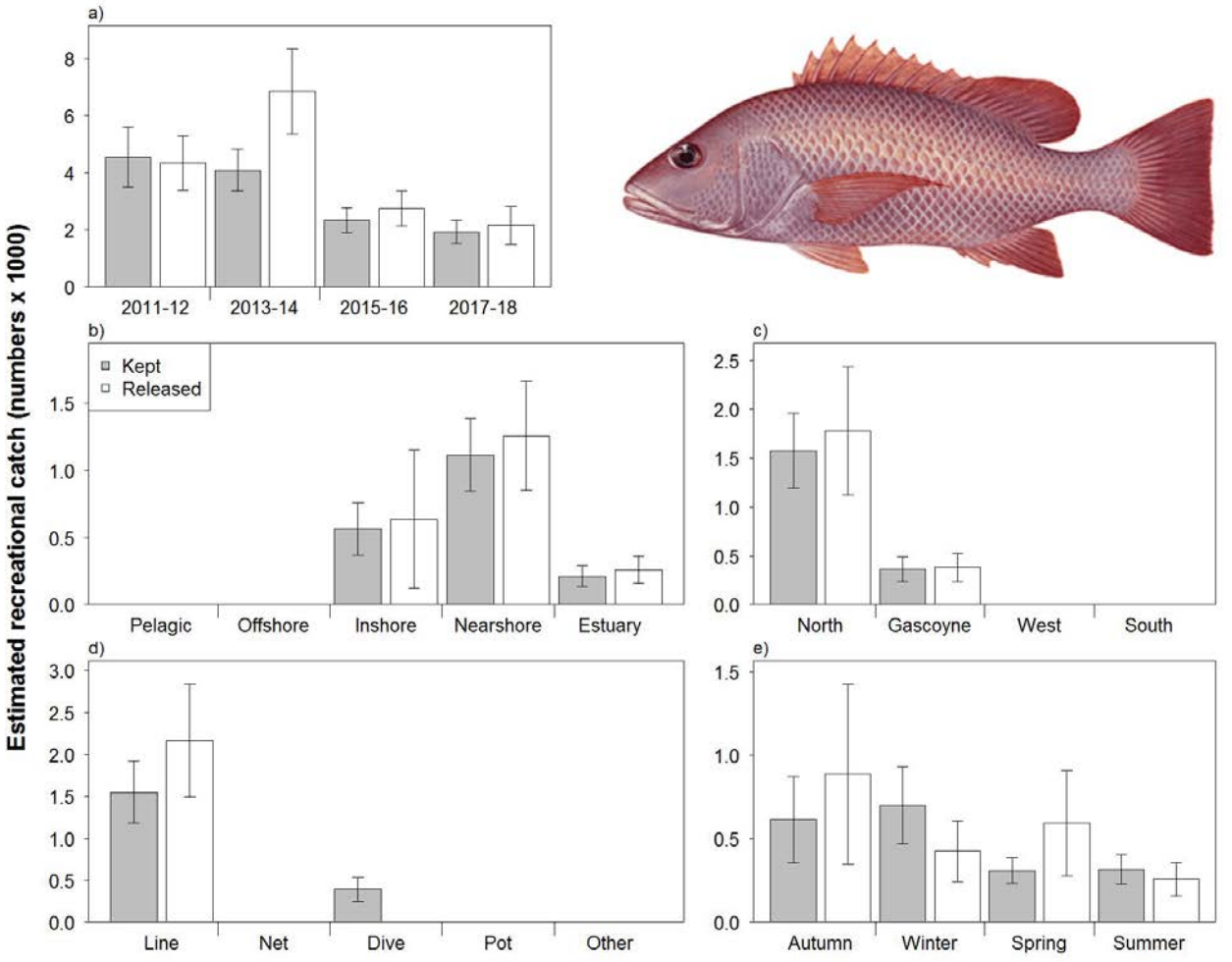


**Figure 44.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Mangrove Jack in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.18 Blue Mackerel (*Scomber australasicus*)

Most boat-based recreational catches of Blue Mackerel occurred in the South Coast and West Coast (Figure 45c). The majority of catches were retained (14% released; Table 4, Figure 45a). Catches were taken predominantly from nearshore and inshore demersal (Figure 45b). All catches were taken by line fishing (Figure 45d). Blue Mackerel were mostly harvested in summer and autumn (Figure 45e). The estimated kept recreational catch of Blue Mackerel in 2017/18 was higher than 2015/16; however, the catch estimates for this species have high uncertainty (Figure 45a).

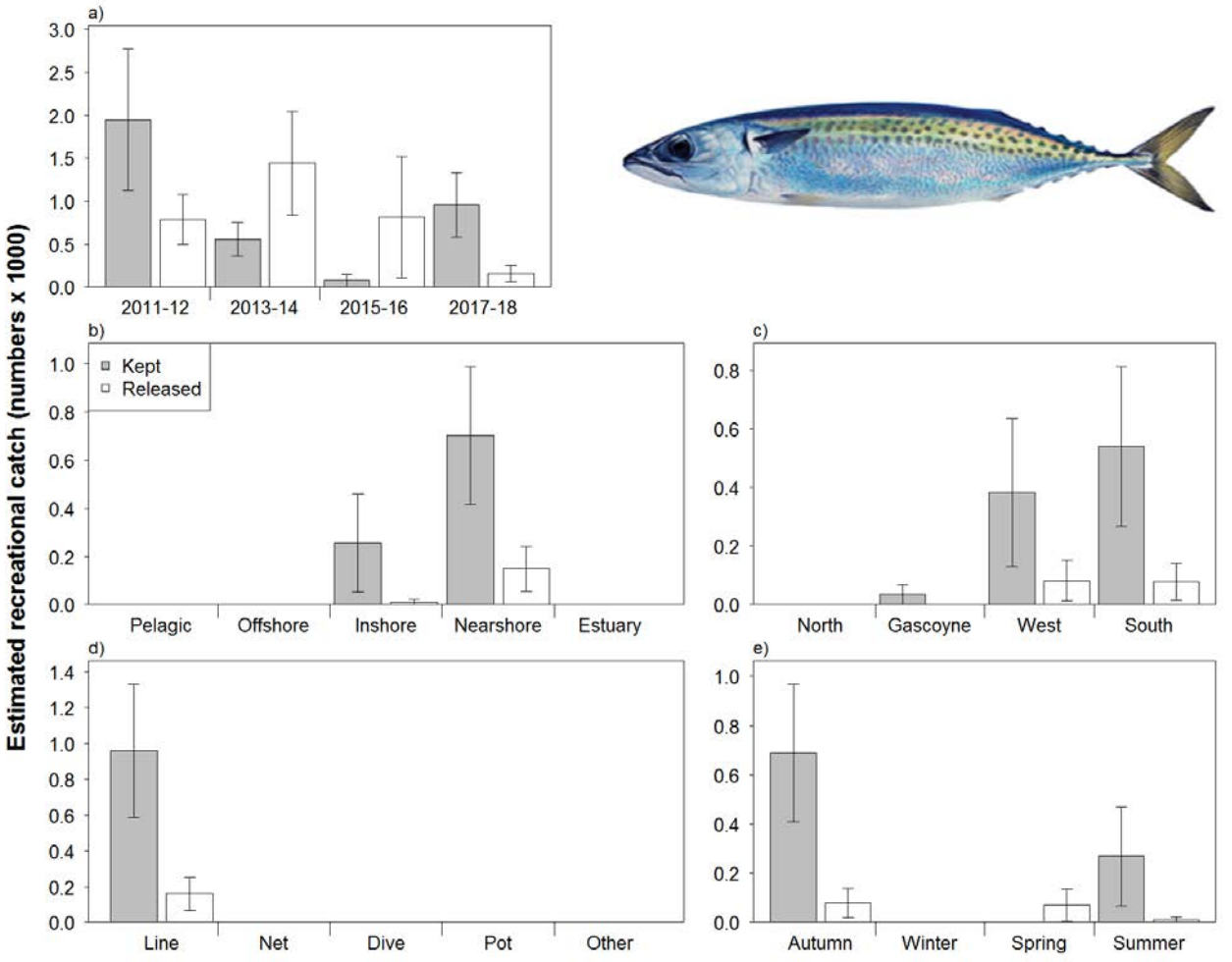


**Figure 45.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Blue Mackerel in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.19 Brownspotted Wrasse (*Notolabrus parilus*)

Most boat-based recreational catches of Brownspotted Wrasse occurred in the West Coast, with some catches in the South Coast (Figure 46c). The majority of catches were released (85%; Table 5, Figure 46a) with most releases attributed to "Other" and "Too Many" (Table 6). Catches were taken predominantly from nearshore (Figure 46b). All catches were taken by line fishing (Figure 46d). Brownspotted Wrasse were harvested throughout the year, with with lower catches in winter (Figure 46e). The estimated kept and released recreational catches of Brownspotted Wrasse in 2017/18 were similar with previous statewide surveys (Figure 46a).

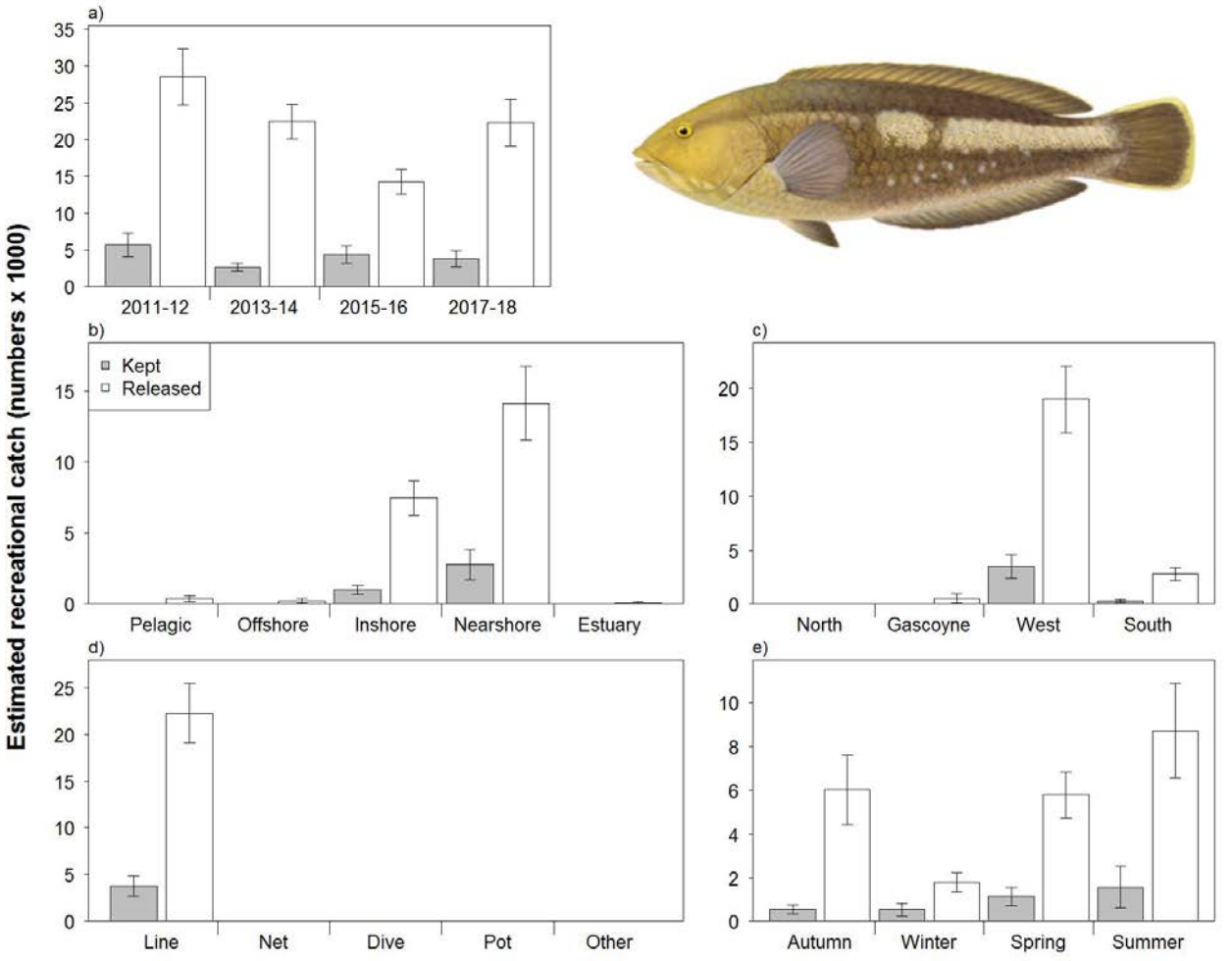


**Figure 46.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Brownspotted Wrasse in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.20 Southern Maori Wrasse (*Ophthalmolepis lineolatus*)

Most boat-based recreational catches of Southern Maori Wrasse occurred in the West Coast, with some catches in the South Coast (Figure 47c). The majority of catches of Southern Maori Wrasse were released (81%; Table 4, Figure 47a) with most releases attributed to "Too Many" and “Other” (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 47b). All catches were taken by line fishing (Figure 47d). Southern Maori Wrasse were mostly harvested in spring, summer and autumn (Figure 47e). The estimated kept recreational catch of Southern Maori Wrasse in 2017/18 were similar with previous statewide surveys, although the estimated released recreational catch was similar to 2015/6 and 2013/14 but lower than 2011/12 (Figure 47a).

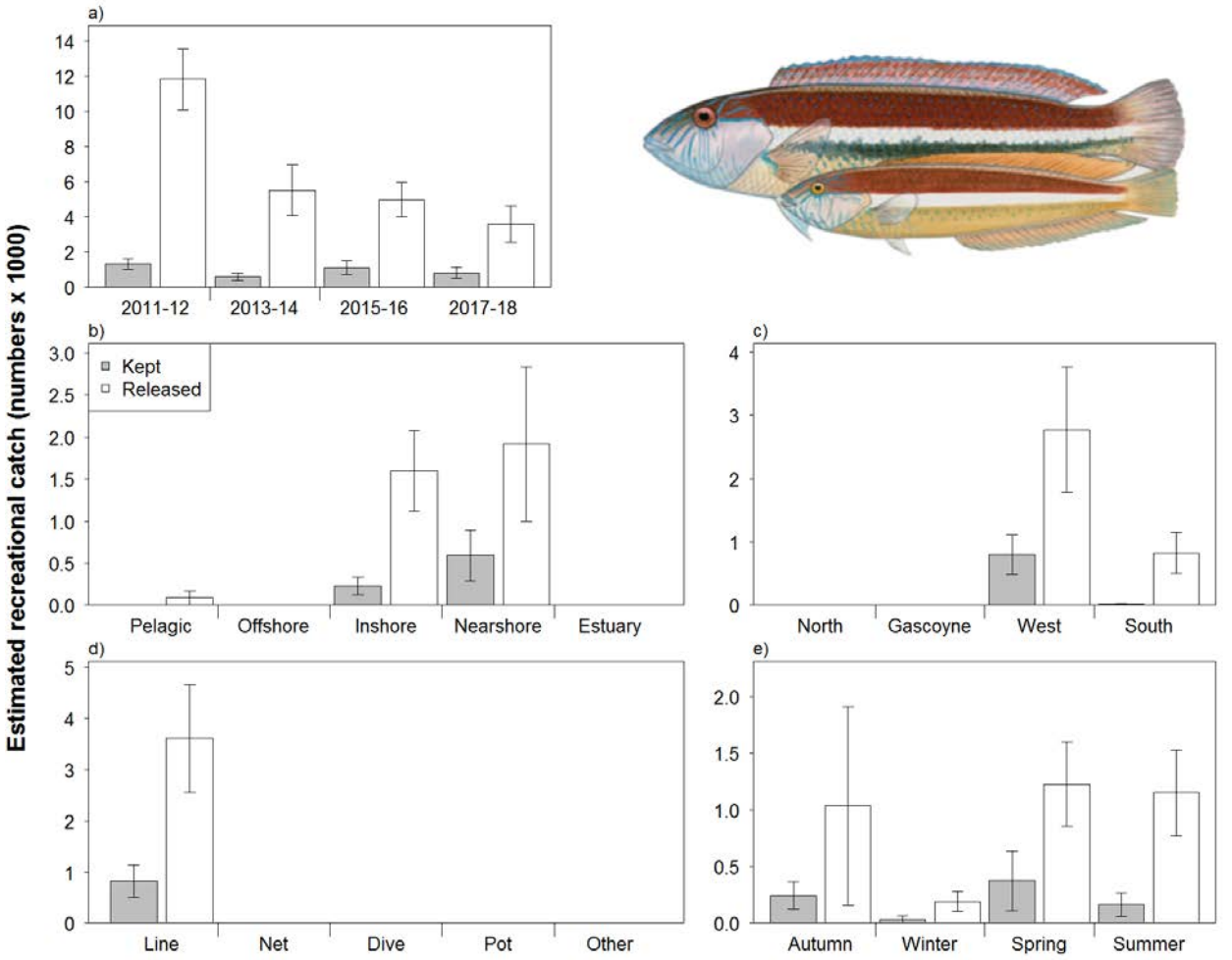


**Figure 47.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Southern Maori Wrasse in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.21 Western King Wrasse (*Coris auricularis*)

Most boat-based recreational catches of Western King Wrasse occurred in the West Coast, with some catches in the South Coast (Figure 48c). The majority of catches were released (85%; Table 5, Figure 48a) with most releases attributed to "Other" and "Too Many" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 48b). All catches were taken by line fishing (Figure 48d). Western King Wrasse were harvested throughout the year, with higher catches in spring, summer and autumn compared with winter (Figure 48e). The estimated kept recreational catch of Western King Wrasse in 2017/18 was similar with previous statewide surveys, although the estimated released recreational catch was similar to 2015/6 but lower than 2013/14 and 2011/12 (Figure 48a).

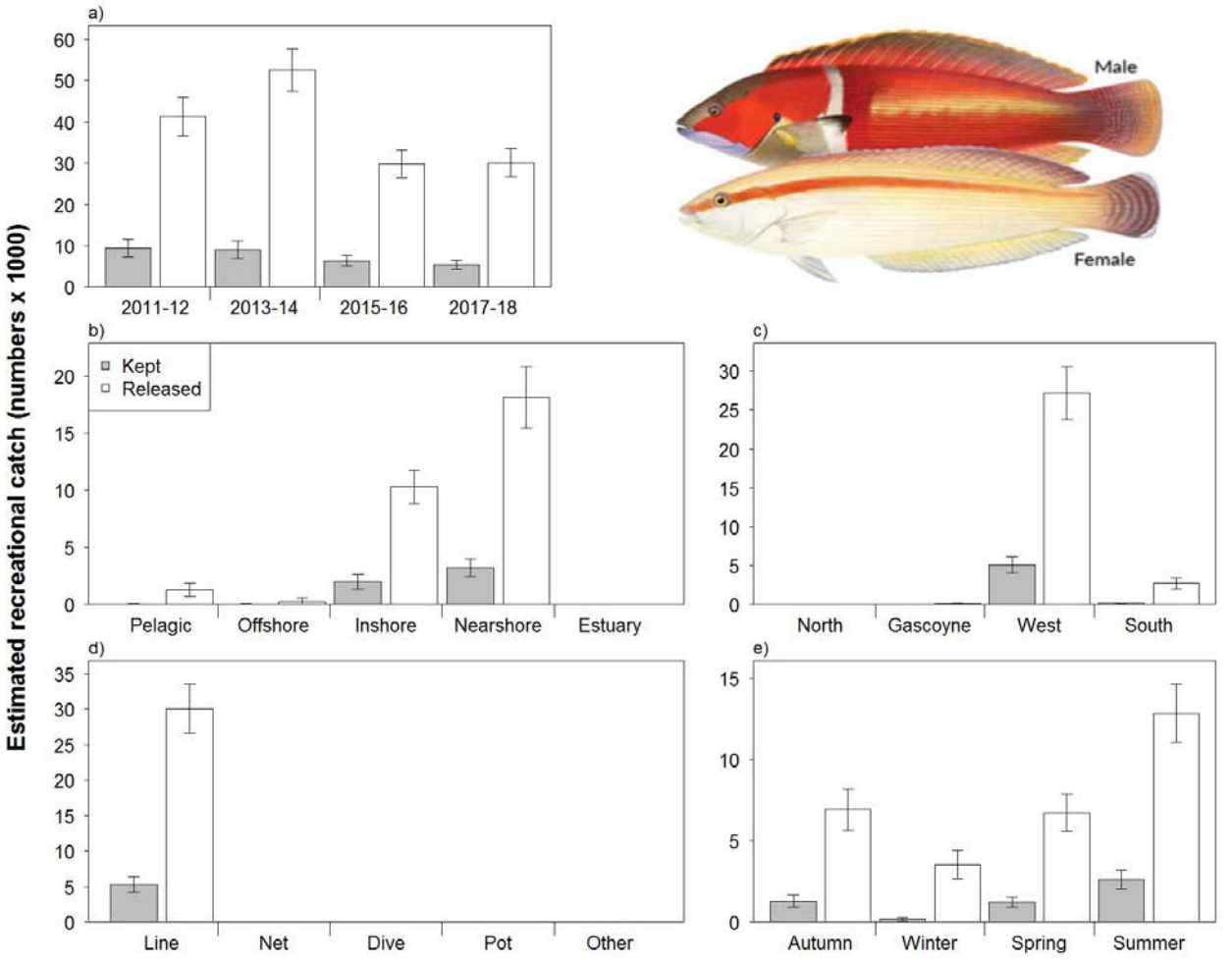


**Figure 48.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Western King Wrasse in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.22 King George Whiting (*Sillaginodes punctatus*)

Whiting species, including King George Whiting, are indicator species in the Gascoyne Coast, South Coast and West Coast bioregions. Boat-based recreational catches of King George Whiting occurred in the West Coast and South Coast (Figure 49c). The majority of catches were retained (20% released; Table 4, Figure 49a) with most releases attributed to "Under Size" and "Too Small" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 49b). Most catches were taken by line fishing (Figure 49d). King George Whiting were harvested throughout the year, with higher catches in spring and summer compared with autumn and winter (Figure 49e). The estimated kept and released recreational catch of King George Whiting in 2017/18 was similar to 2015/16, but lower than 2013/14 and 2011/12 (Figure 49a).

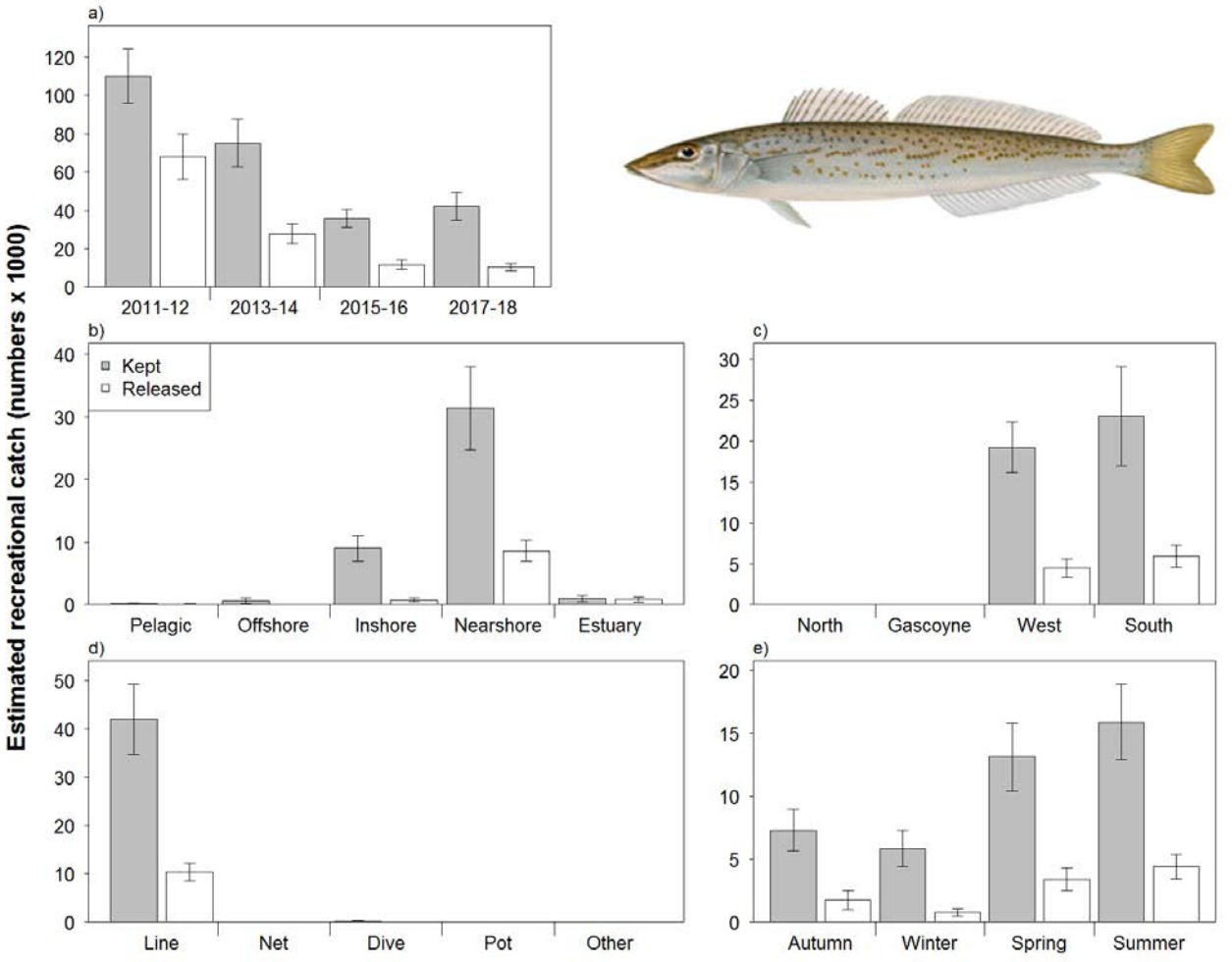


**Figure 49.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of King George Whiting in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.2.23 School Whiting (*Sillago bassensis*, *vittata* and *schomburgkii*)

Whiting species, including School and Yellowfin Whiting, are indicator species in the Gascoyne Coast, South Coast and West Coast bioregions. School Whiting includes Southern School Whiting (*Sillago bassensis*), Western School Whiting (*S. vittata*) and Yellowfin Whiting (*S. schomburgkii*). Most boat-based recreational catches of School Whiting occurred in the West Coast, with some catches in the South Coast and Gascoyne Coast (Figure 50c). The majority of catches were retained (24% released; Table 4, Figure 50a) with most releases attributed to "Too Small" and "Under Size" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 50b). Most catches were taken by line fishing (Figure 50d). School Whiting were harvested throughout the year, with lower catches in winter (Figure 50e). The estimated kept recreational catch of School Whiting in 2017/18 was similar to 2015/16, but lower than 2013/14 and 2011/12, and the estimated released recreational catch in 2017/18 was similar with previous statewide surveys (Figure 50a).

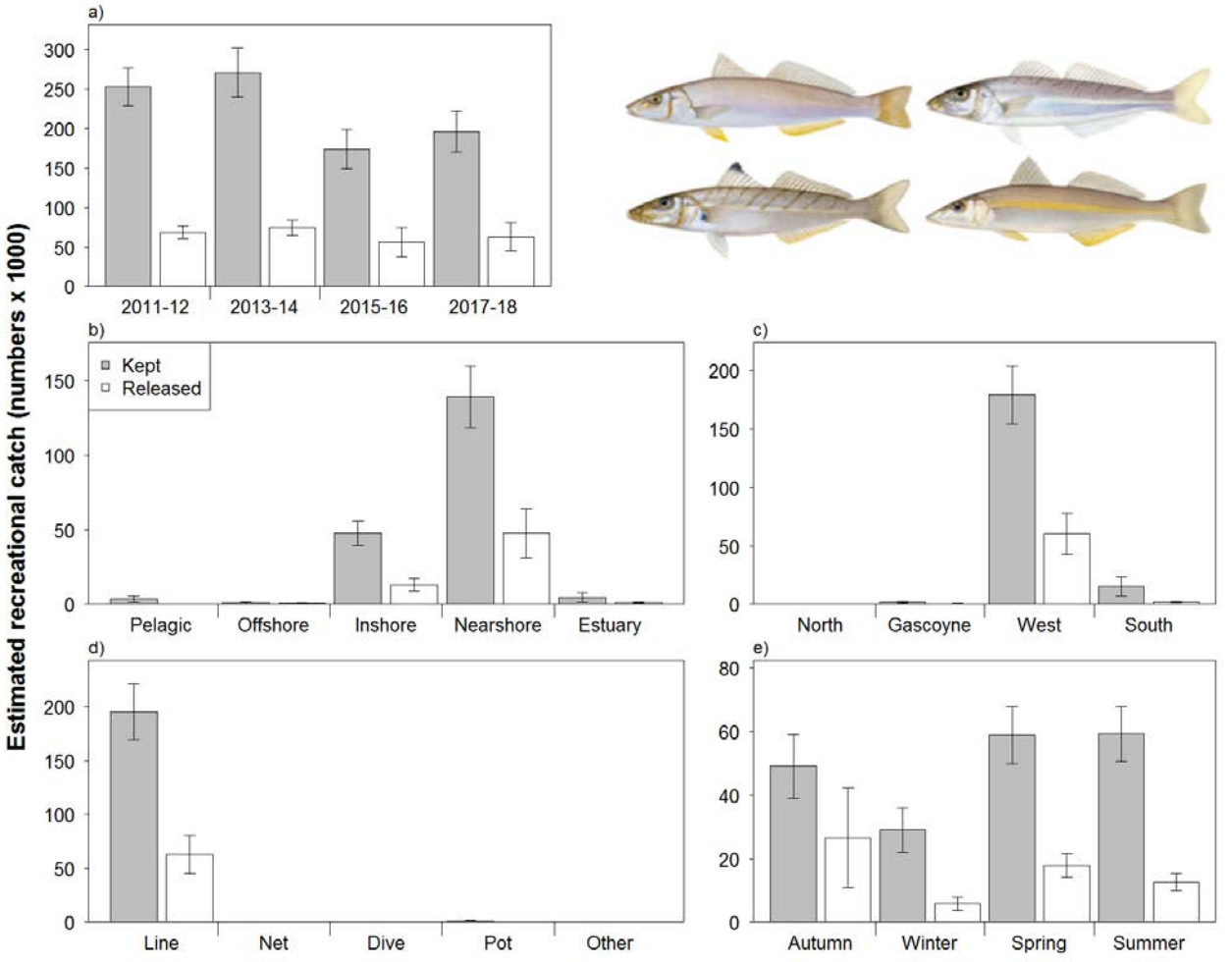


**Figure 50.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of School Whiting in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

## 6.3 Inshore Demersal

### 6.3.1 Pink Snapper (*Chrysophrys auratus*)

Pink Snapper is an inshore demersal indicator species in the Gascoyne Coast, West Coast and South Coast bioregions. It is also a nearshore indicator species in the Gascoyne Coast bioregion. Most boat-based recreational catches of Pink Snapper occurred in the West Coast and Gascoyne Coast, with some catches in the South Coast and North Coast (Figure 51c). The majority of catches were released (73%; Table 5, Figure 51a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 51b). All catches were taken by line fishing (Figure 51d). Pink Snapper were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 51e). The estimated kept and released recreational catches of Pink Snapper in 2017/18 were similar with previous statewide surveys (Figure 51a).

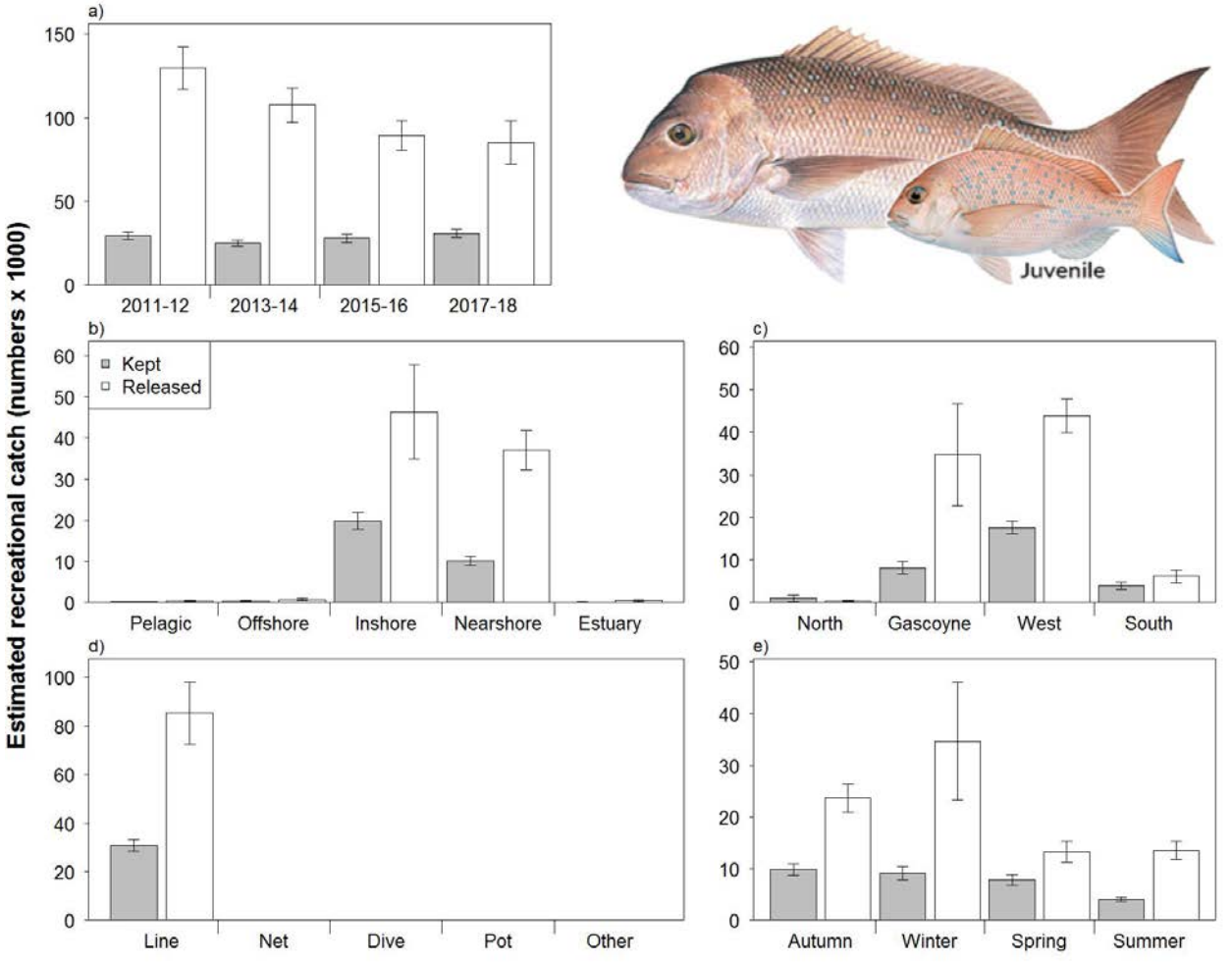


**Figure 51.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Pink Snapper in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.2 Bluespotted Emperor (*Lethrinus punctulatus*)

Bluespotted Emperor is an indicator species in the North Coast bioregion. Most boat-based recreational catches of Bluespotted Emperor occurred in the North Coast, followed by the Gascoyne Coast (Figure 52c). The majority of catches were released (82%; Table 4, Figure 52a). Catches were taken from inshore demersal and nearshore (Figure 52b). All catches were taken by line fishing (Figure 52d). Bluespotted Emperor were harvested throughout the year, with higher catches in winter compared with spring, summer and autumn (Figure 52e). The estimated kept recreational catch of Bluespotted Emperor in 2017/18 was lower than previous statewide surveys, however, the catch estimates for this species have high uncertainty (Figure 52a).

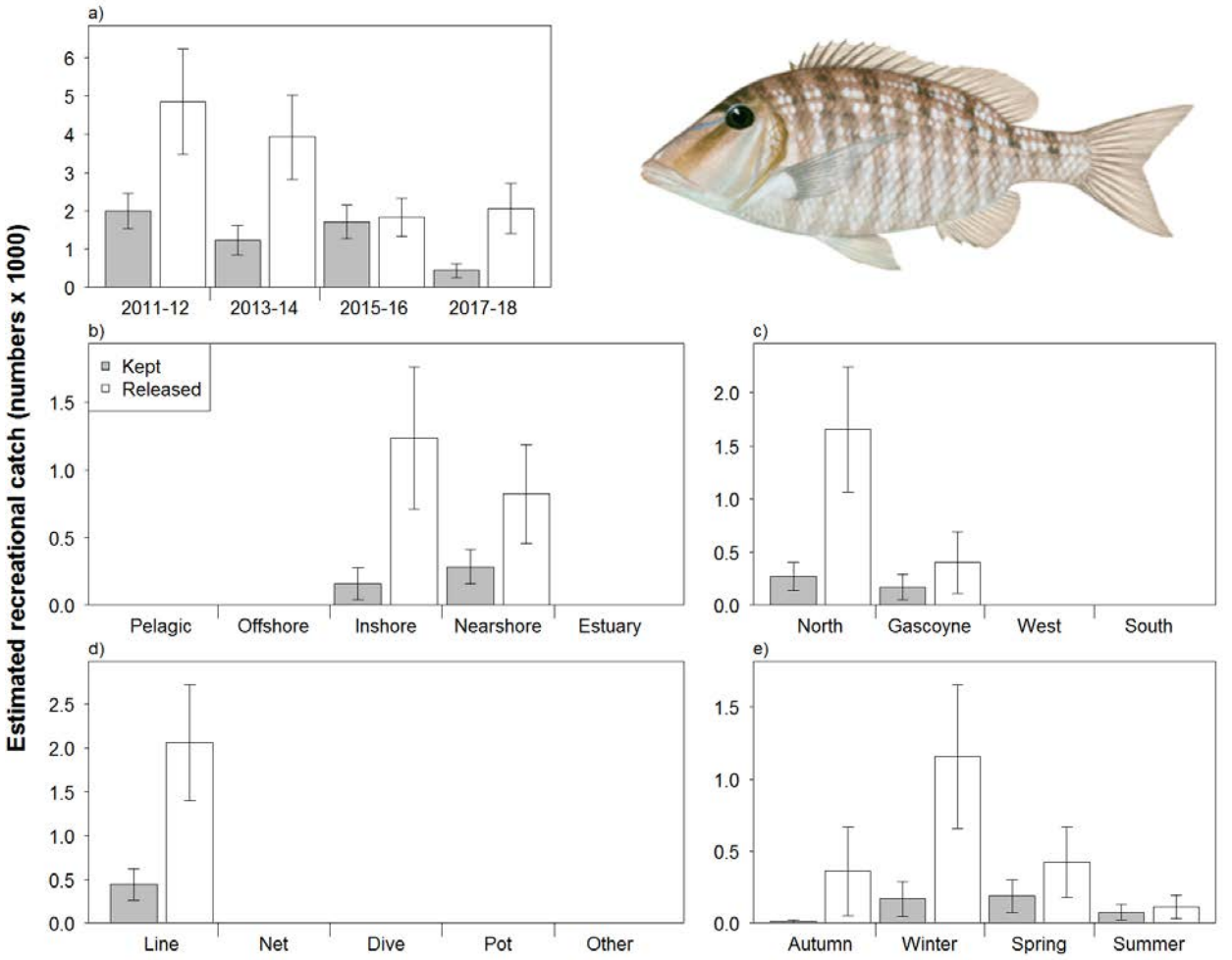


**Figure 52.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Bluespotted Emperor in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.3 Grass Emperor (*Lethrinus laticaudis*)

Most boat-based recreational catches of Grass Emperor occurred in the Gascoyne Coast, followed by the North Coast (Figure 53c). The majority of catches were released (63%; Table 5, Figure 53a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 53b). Most catches were taken by line fishing (Figure 53d). Grass Emperor were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 53e). The estimated kept and released recreational catches of Grass Emperor in 2017/18 were similar to 2015/16 (Figure 53a).

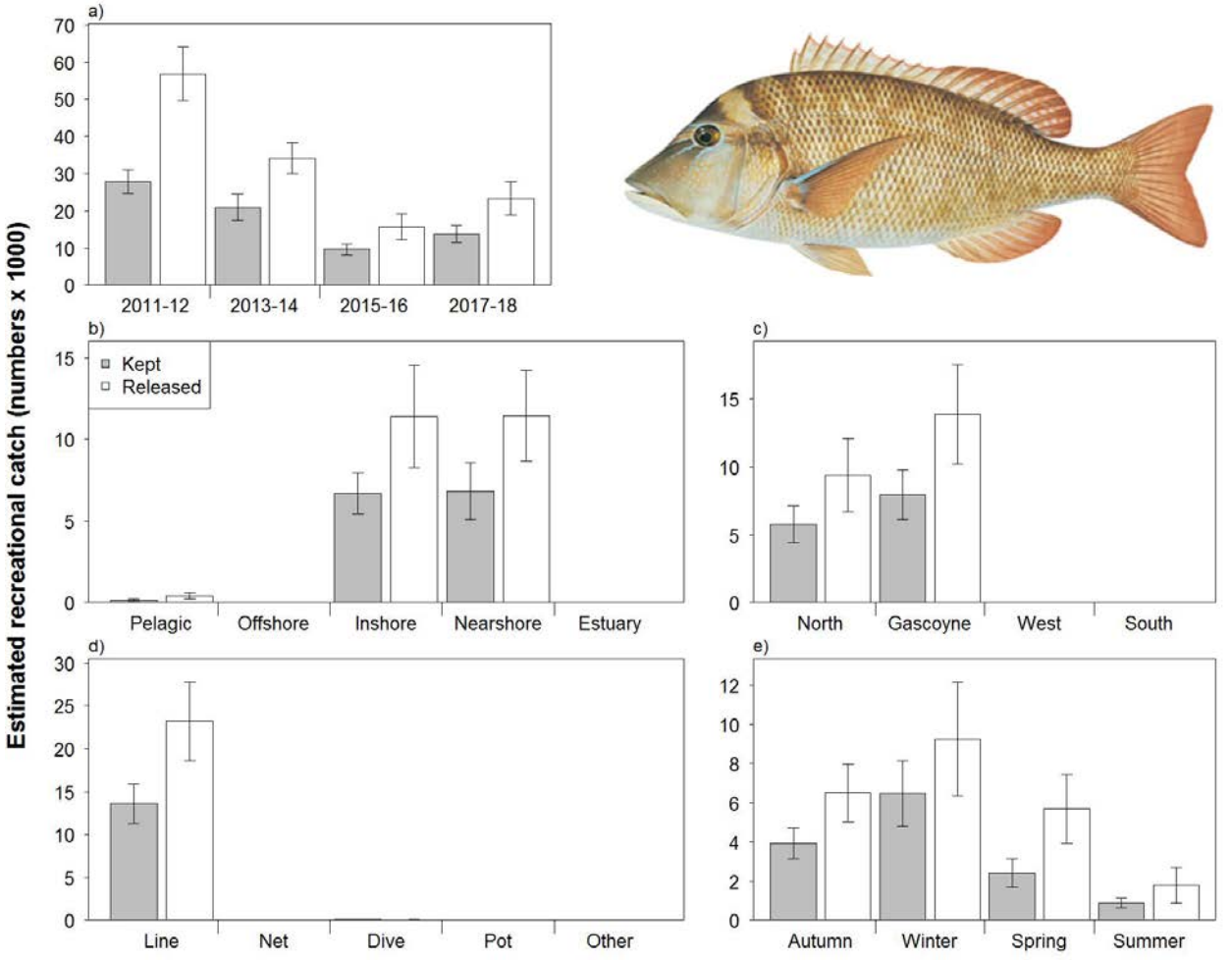


**Figure 53.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Grass Emperor in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.4 Redthroat Emperor (*Lethrinus miniatus*)

Redthroat Emperor is an indicator in the West Coast bioregion. Most boat-based recreational catches of Redthroat Emperor occurred in the Gascoyne Coast, followed by the West Coast and North Coast (Figure 54c). The majority of catches were released (63%; Table 5, Figure 54a) with most releases attributed to "Under Size" and "Too Small" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 54b). Catches were mostly taken by line fishing (Figure 54d). Redthroat Emperor were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 54e). The estimated kept and released recreational catches of Redthroat Emperor in 2017/18 were similar with previous statewide surveys (Figure 54a).

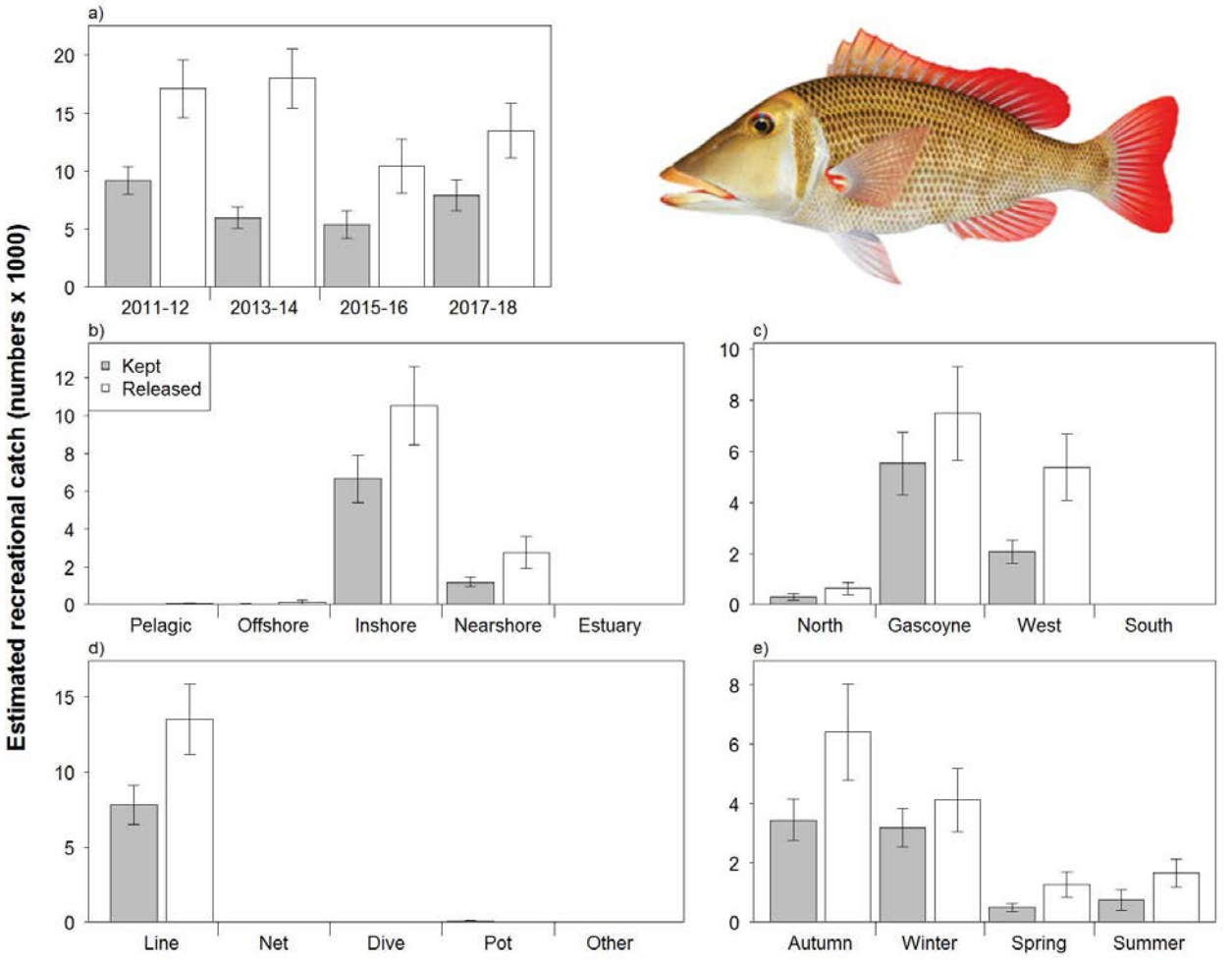


**Figure 54.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Redthroat Emperor in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.5 Spangled Emperor (*Lethrinus nebulosus*)

Spangled Emperor is an indicator species in the Gascoyne Coast bioregion. Most boat-based recreational catches of Spangled Emperor occurred in the Gascoyne Coast, followed by the North Coast and West Coast (Figure 55c). The majority of catches were released (60%; Table 5, Figure 55a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 55b). Most catches were taken by line fishing (Figure 55d). Spangled Emperor were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 55e). The estimated kept recreational catch of Spangled Emperor in 2017/18 was similar to 2015/16 and 2013/14, but lower than 2011/12 (Figure 55a).

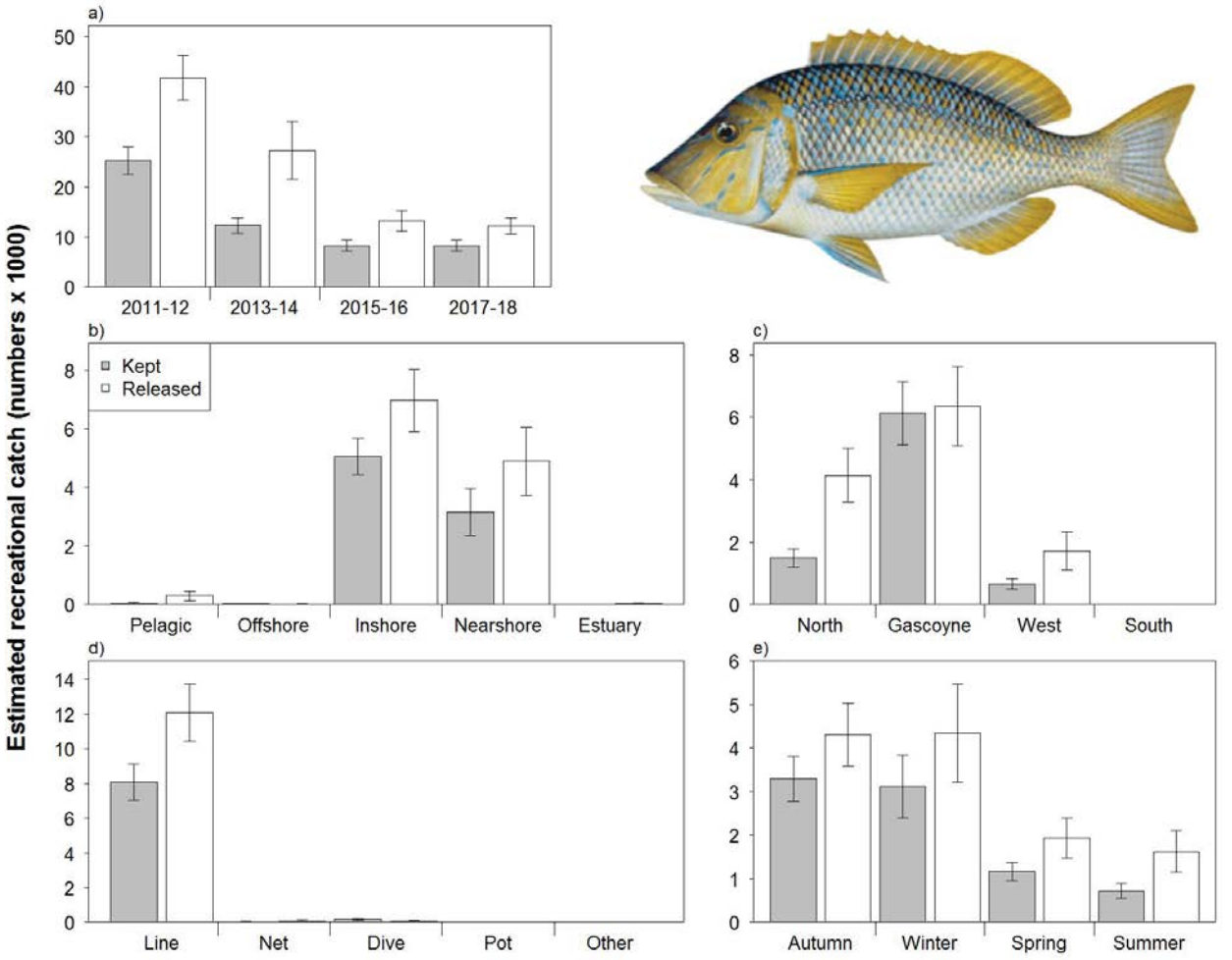


**Figure 55.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Spangled Emperor in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.6 Blackspotted Rockcod (*Epinephelus malabaricus*)

Most boat-based recreational catches of Blackspotted Rockcod occurred in the North Coast, with some catches in the Gascoyne Coast and West Coast (Figure 56c). The majority of catches were released (78%; Table 4, Figure 56a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 56b). Most catches were taken by line fishing (Figure 56d). Blackspotted Rockcod were harvested throughout the year, with higher catches in winter compared with spring, summer and autumn (Figure 56e). The estimated kept recreational catch of Blackspotted Rockcod in 2017/18 was similar with previous statewide surveys (Figure 56a).

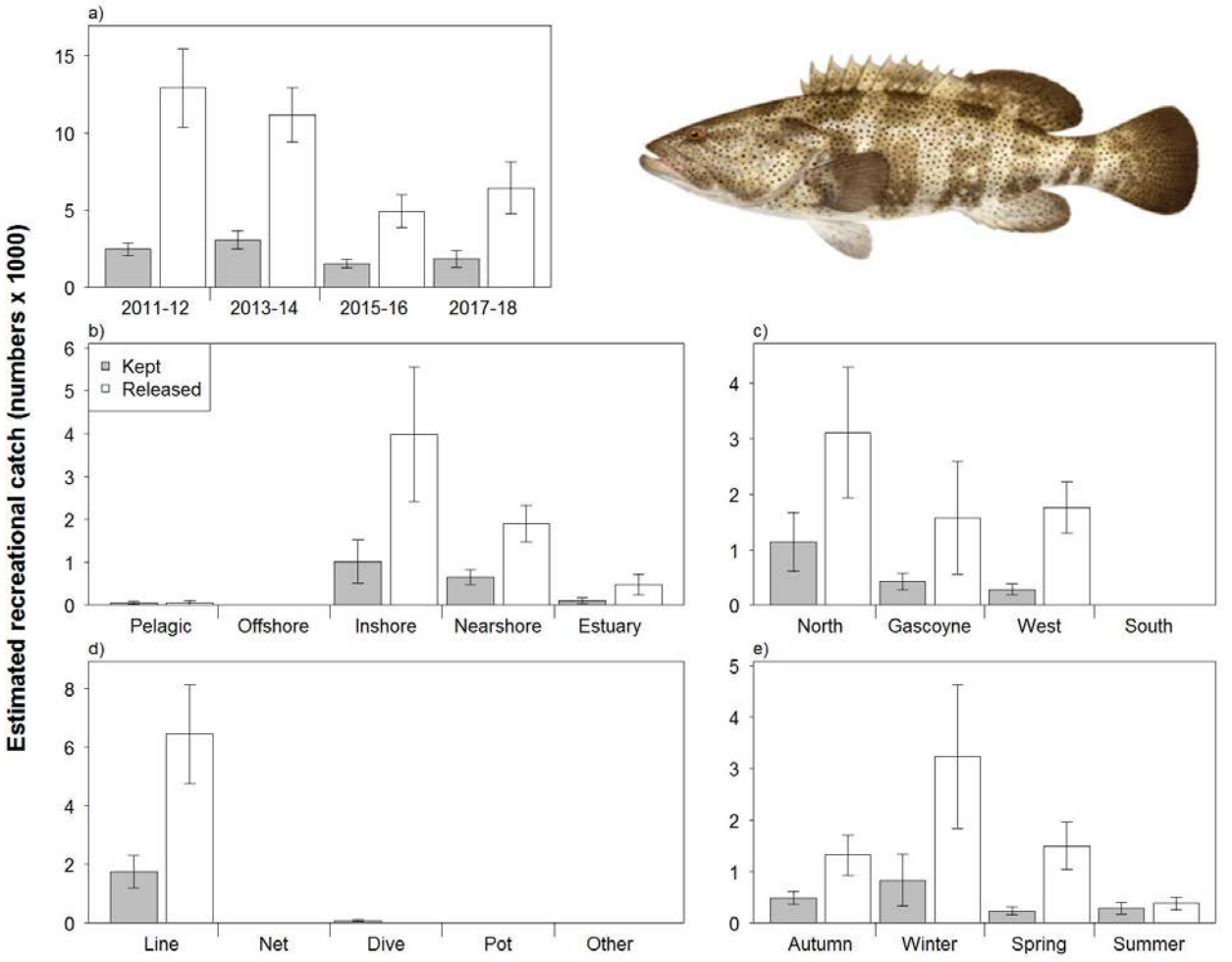


**Figure 56.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Blackspotted Rockcod in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.7 Breaksea Cod (*Epinephelides armatus*)

Most boat-based recreational catches of Breaksea Cod occurred in the West Coast, followed by the South Coast and Gascoyne Coast (Figure 57c). The majority of catches were retained (38% released; Table 4, Figure 57a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 57b). Catches were mostly taken by line fishing (Figure 57d). Breaksea Cod were harvested throughout the year, with higher catches in summer and autumn compared with spring and winter (Figure 57e). The estimated kept and released recreational catches of Breaksea Cod in 2017/18 were similar with previous statewide surveys (Figure 57a).

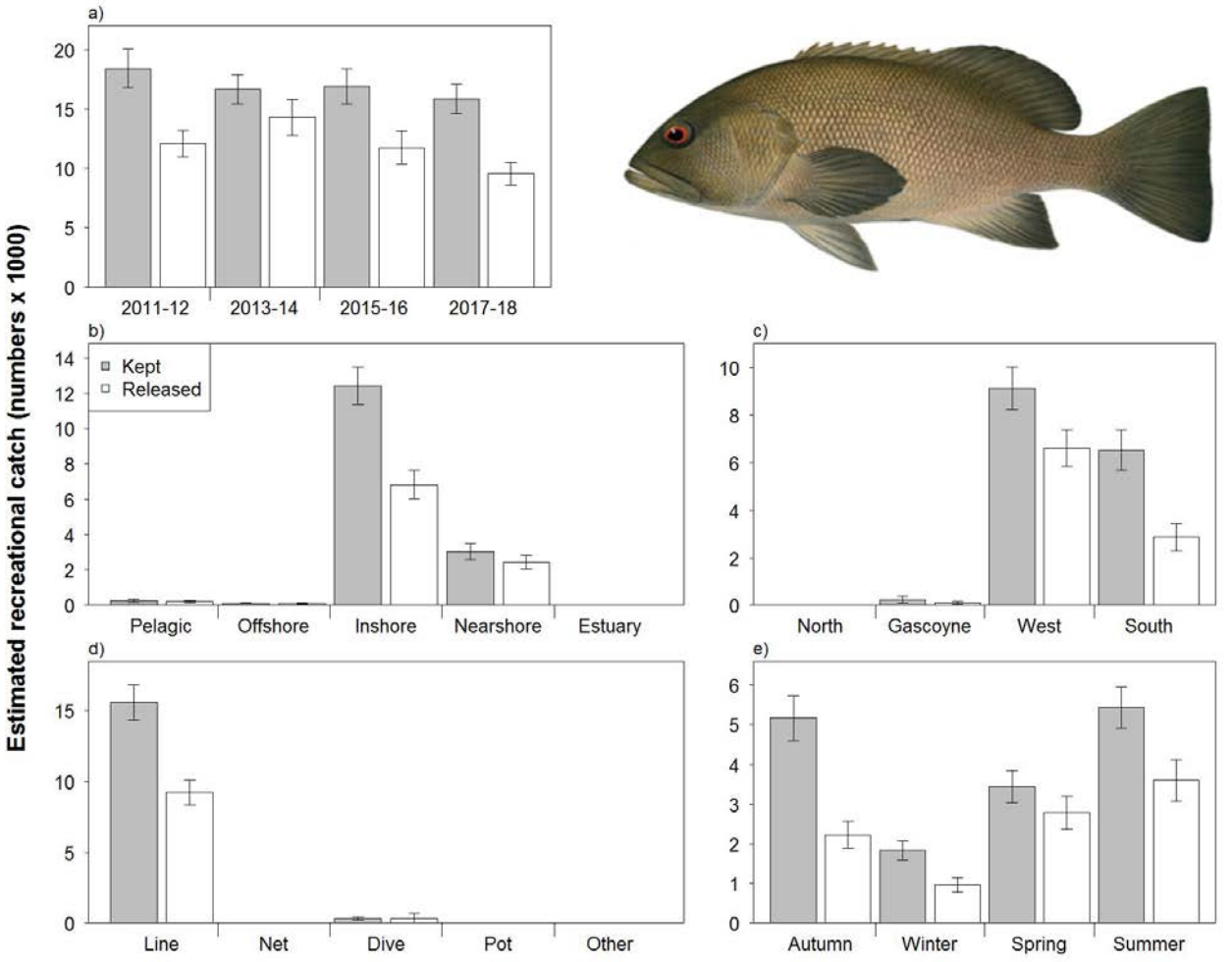


**Figure 57.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Breaksea Cod in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.8 Coral Trout (*Plectropomus maculatus* and *P. leopardus*)

Barcheek Coral Trout is an indicator in the North Coast bioregion. Reporting for this species includes catches for Common Coral Trout (*Plectropomus leopardus*). Most boat-based recreational catches of Barcheek Coral Trout occurred in the North Coast, followed by the Gascoyne Coast and West Coast (Figure 58c). The majority of catches were retained (42% released; Table 4, Figure 58a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 58b). Catches were mostly taken by line fishing with some fishing from diving (Figure 58d). Coral Trout were harvested throughout the year, with higher catches in autumn, winter and spring compared with summer (Figure 58e). The estimated kept recreational catch of Coral Trout in 2017/18 was higher than 2015/16 and 2013/14, but similar wth 2011/12 (Figure 58a).

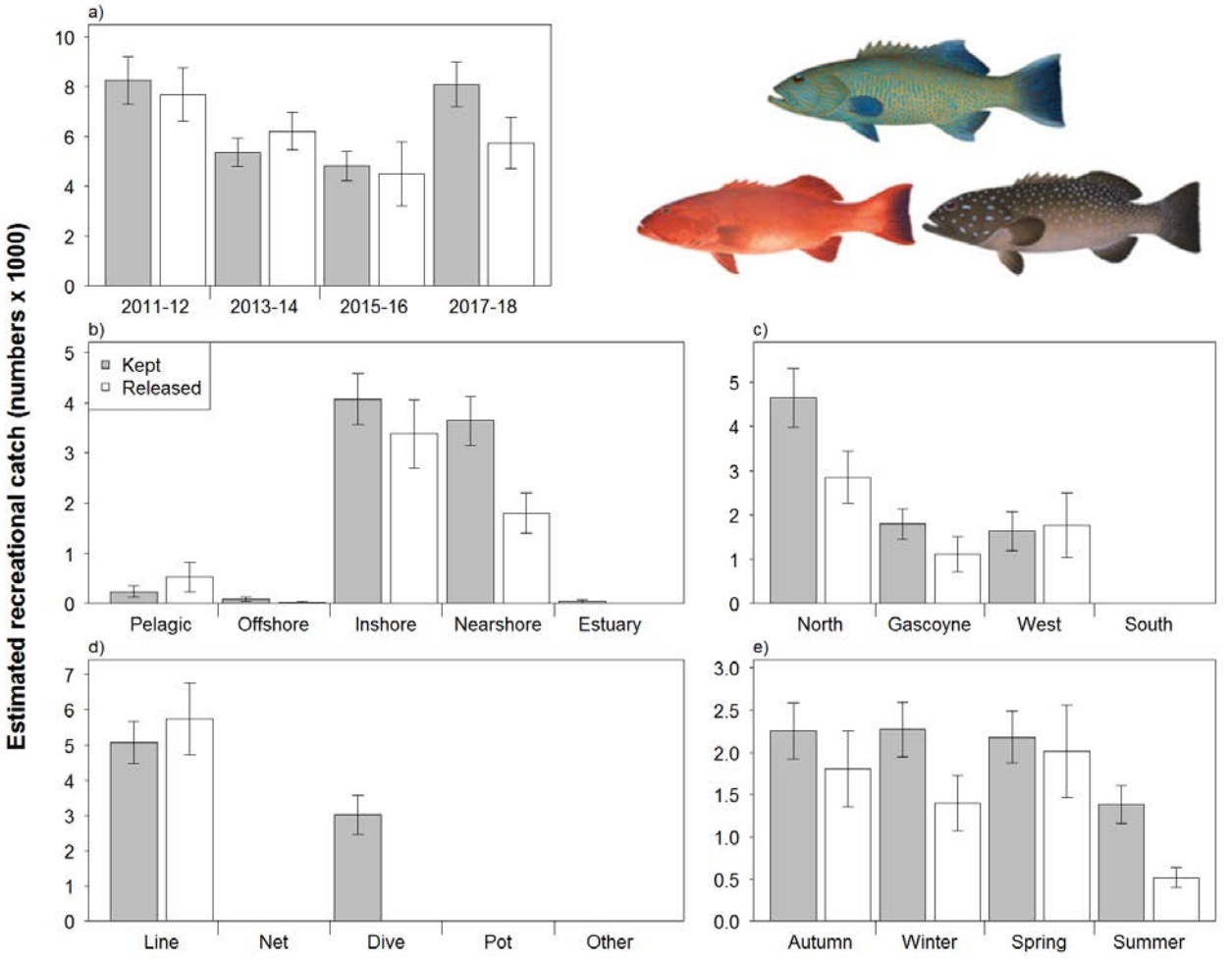


**Figure 58.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Barcheek Coral Trout in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.9 Goldspotted Rockcod (*Epinephelus coioides*)

Most boat-based recreational catches of Goldspotted Rockcod occurred in the North Coast, followed by the Gascoyne Coast and West Coast (Figure 59c). The majority of catches were released (65%; Table 4, Figure 59a) with most releases attributed to "Under Size" and "Other" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 59b). Most catches were taken by line fishing (Figure 59d). Goldspotted Rockcod were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 59e). The estimated kept recreational catch of Goldspotted Rockcod in 2017/18 was similar with previous statewide surveys (Figure 59a).

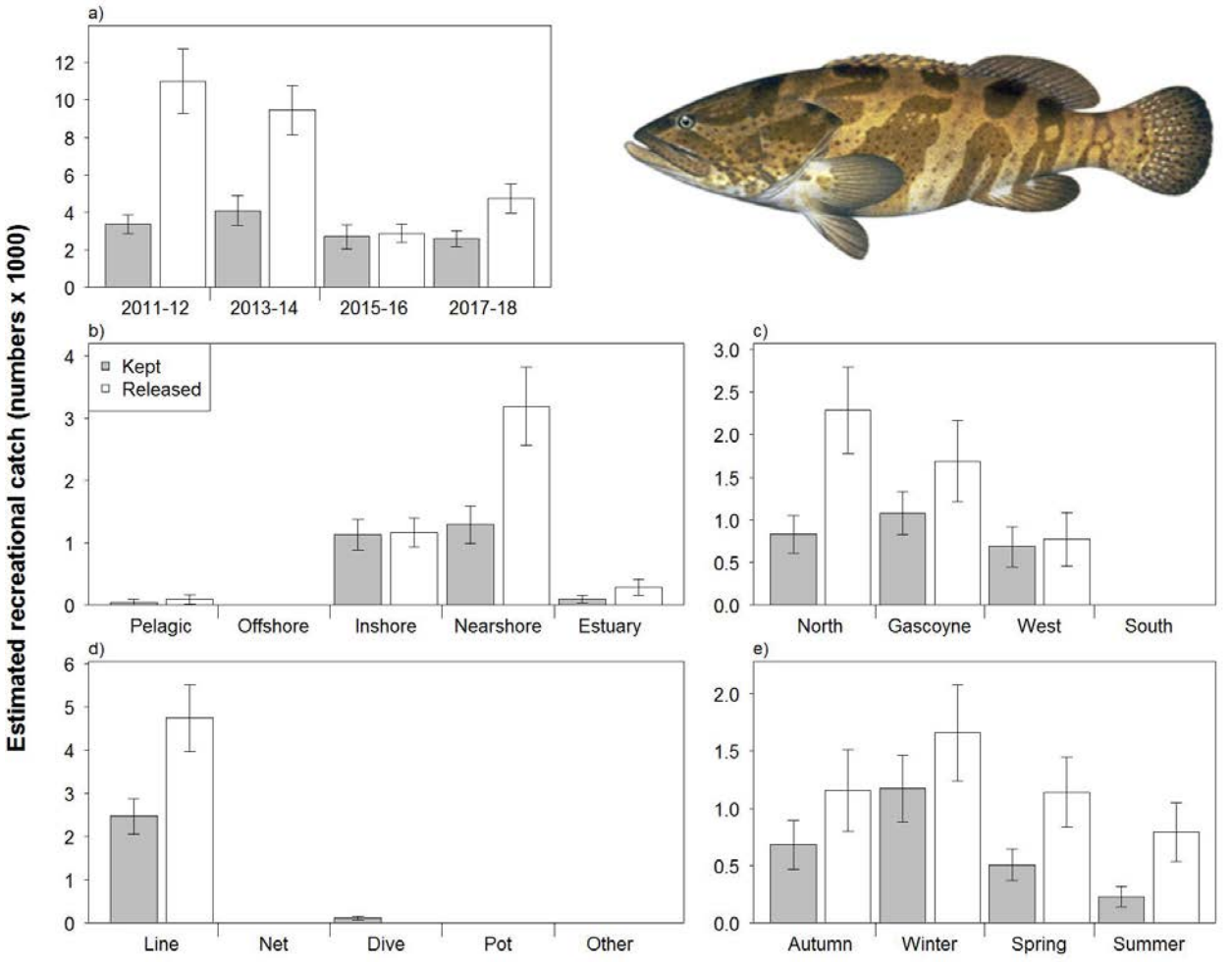


**Figure 59.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Goldspotted Rockcod in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.10 Harlequin Fish (*Othos dentex*)

Most boat-based recreational catches of Harlequin Fish occurred in the West Coast, followed by the South Coast (Figure 60c). The majority of catches were retained (19% released; Table 4, Figure 60a) with most releases attributed to "Under Size" and "Over Limit" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 60b). Catches were mostly taken by line fishing with some fishing from diving (Figure 60d). Harlequin Fish were harvested throughout the year, with higher catches in spring, summer and autumn compared with winter (Figure 60e). The estimated kept and released recreational catches Harlequin Fish in 2017/18 were similar with previous statewide surveys (Figure 60a).

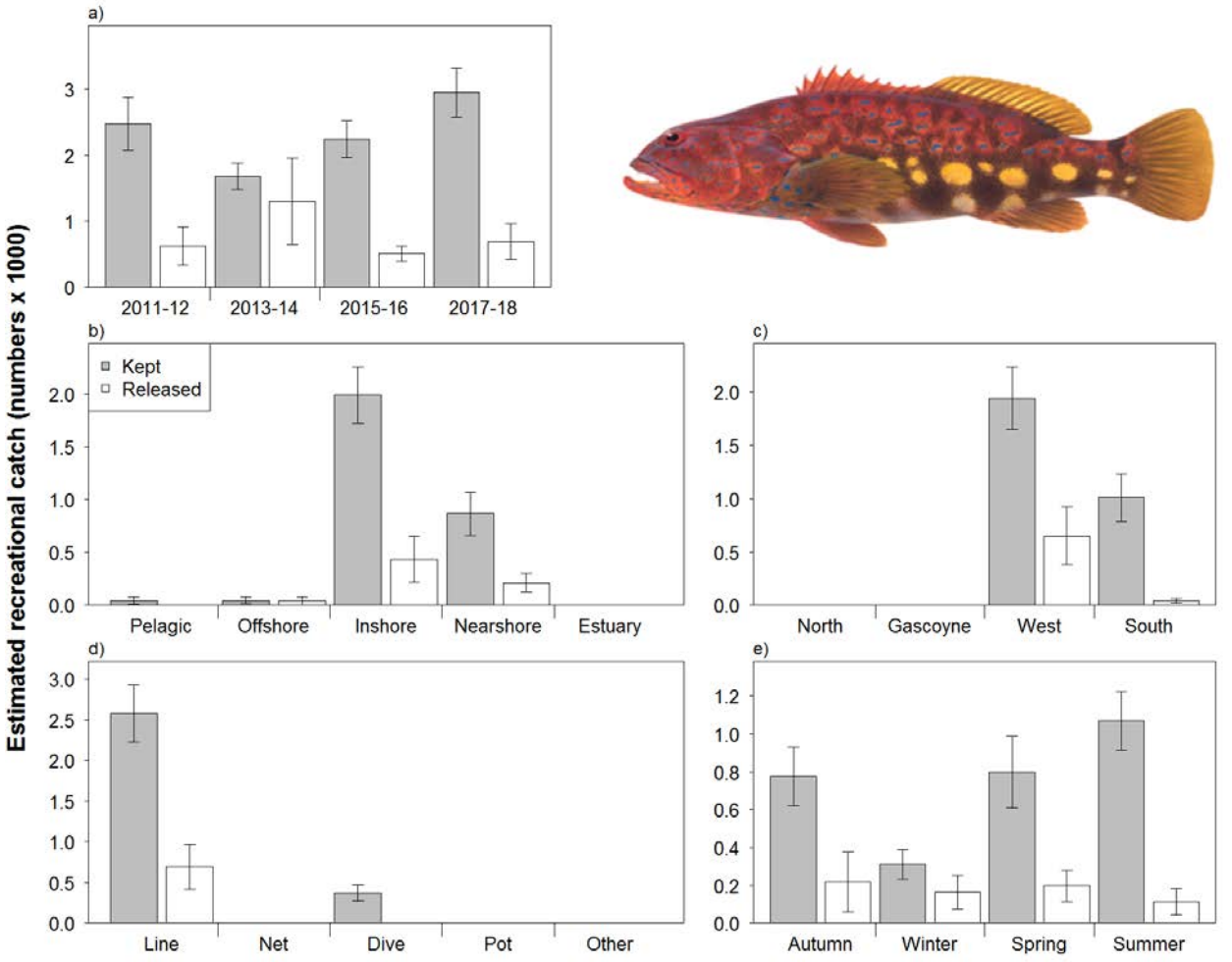


**Figure 60.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Harlequin Fish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.11 Rankin Cod (*Epinephelus multinotatus*)

Rankin Cod is an indicator species in the North Coast bioregion. Most boat-based recreational catches of Rankin Cod occurred in the Gascoyne Coast, followed by the North Coast and West Coast (Figure 61c). The majority of catches were retained (33% released; Table 4, Figure 61a) with most releases attributed to "Under Size" and "Too Small" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 61b). Most catches were taken by line fishing (Figure 61d). Rankin Cod were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 61e). The estimated kept recreational catch of Rankin Cod in 2017/18 was similar with previous statewide surveys, while the estimated released recreational catch in 2017/18 was similar to 2015/16 and 2013/14, but lower than 2011/12 (Figure 61a).

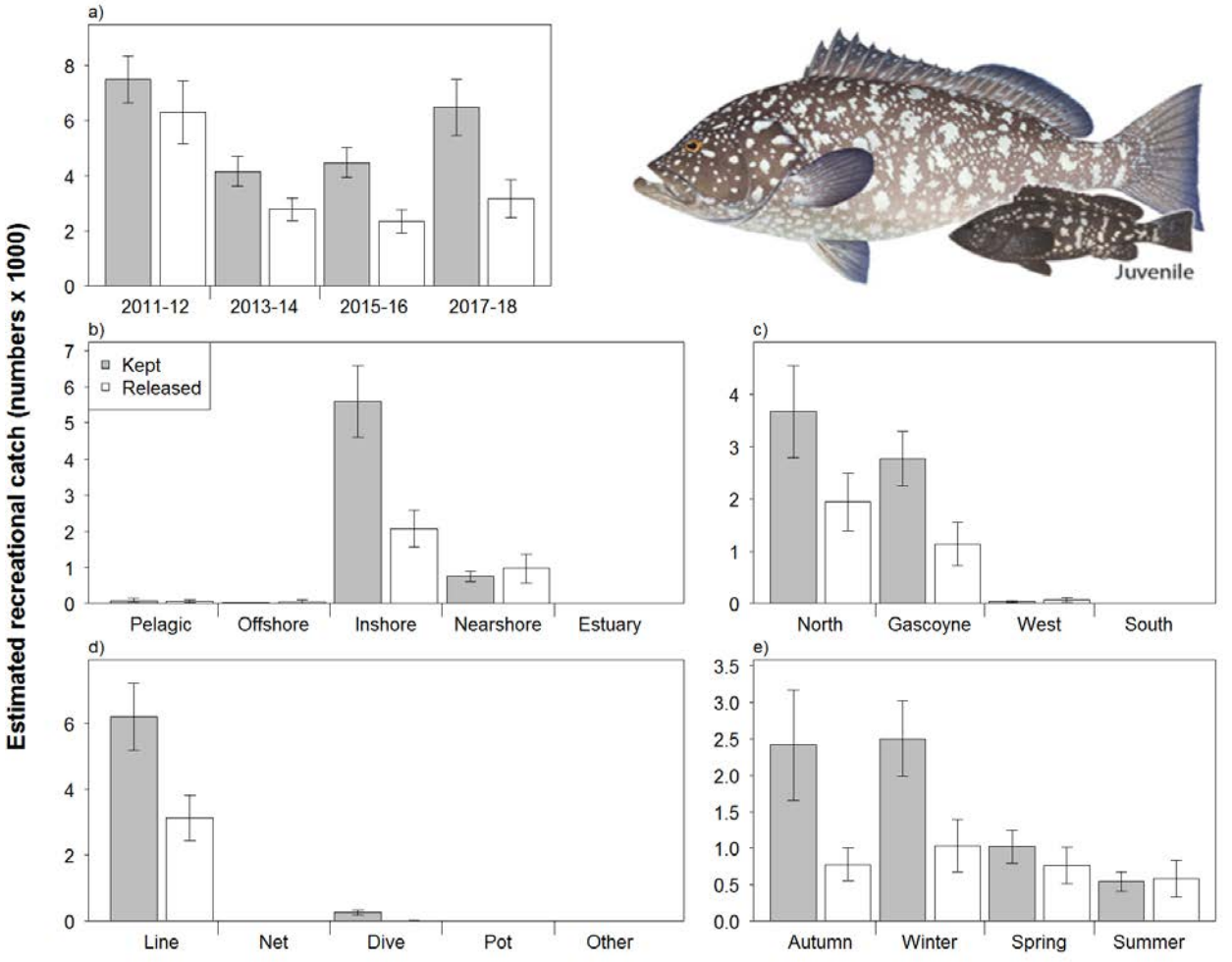


**Figure 61.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Rankin Cod in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.12 Painted Sweetlips (*Diagramma labiosum*)

Boat-based recreational catches of Painted Sweetlips occurred in the North Coast, Gascoyne Coast and West Coast (Figure 62c). Similar proportions of the boat-based recreational catch were kept and released (52% released; Table 4, Figure 62a) with most releases attributed to "Other" and “Under Size” (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 62b). Most catches were taken by line fishing (Figure 62d). Painted Sweetlips were mostly harvested in autumn and winter compared with spring and summer (Figure 62e). The estimated kept and released recreational catches of Painted Sweetlips in 2017/18 was similar to 2015/16, but lower than 2013/14 and 2011/12 (Figure 62a).

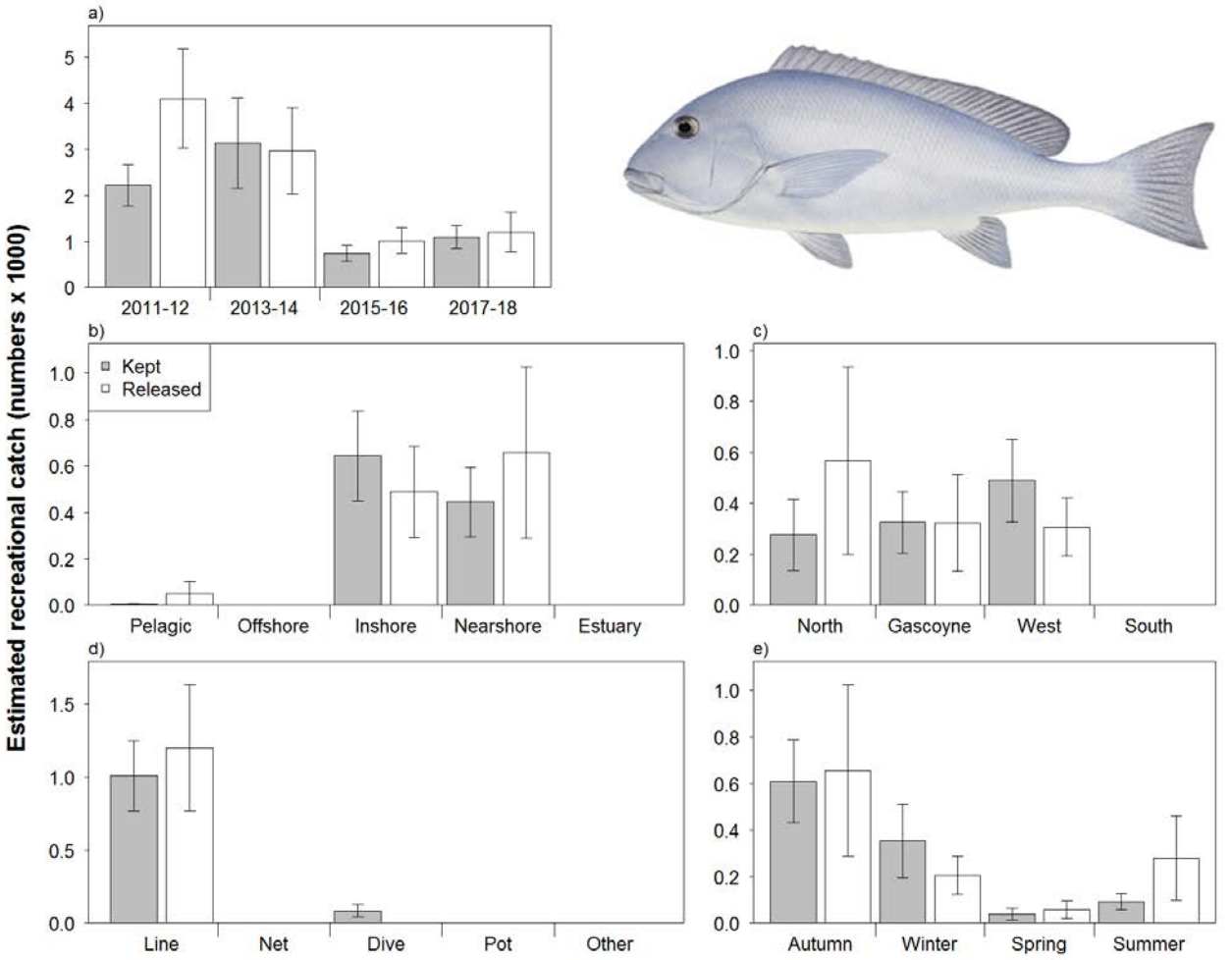


**Figure 62.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Painted Sweetlips in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.13 Sergeant Baker (*Aulopus purpurissatus*)

Most boat-based recreational catches of Sergeant Baker occurred in the West Coast, with some catches in the South Coast and Gascoyne Coast (Figure 63c). The majority of catches were released (72%; Table 4, Figure 63a) with most releases attributed to “Other” and "Too Many" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 63b).. All catches were taken by line fishing (Figure 63d). Sergeant Baker were harvested throughout the year, with similar catches in each season (Figure 63e). The estimated kept and released recreational catches of Sergeant Baker in 2017/18 were similar with previous statewide surveys (Figure 63a).

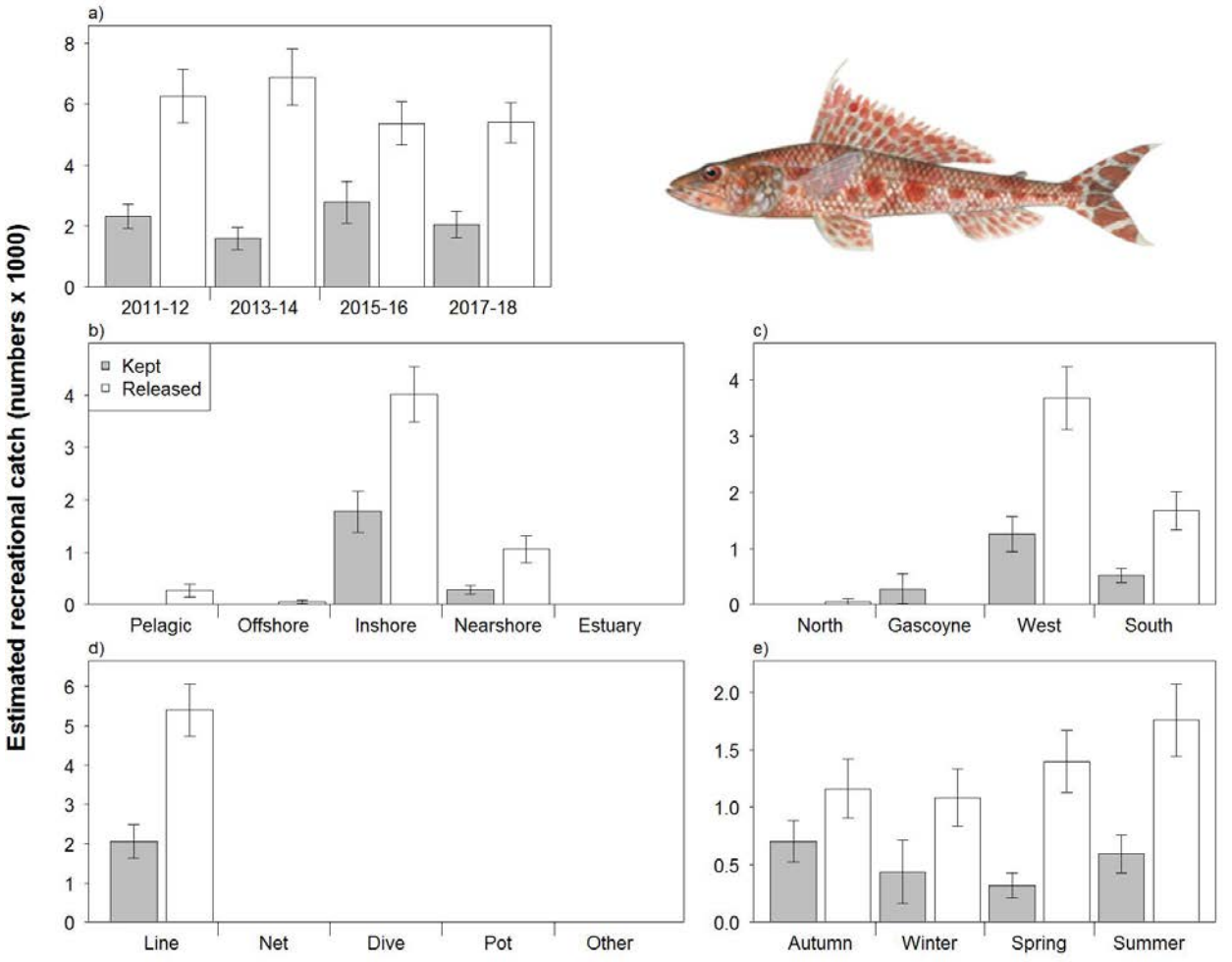


**Figure 63.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Sergeant Baker in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.14 Blue Morwong (*Nemadactylus valenciennesi*)

Blue Morwong is an indicator species in the South Coast bioregion. Most boat-based recreational catches of Blue Morwong occurred in the South Coast, followed by the West Coast (Figure 64c). The majority of catches were retained (17% released; Table 4, Figure 64a) with most releases attributed to "Under Size" and "Too Many" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 64b). Most catches were taken by line fishing with some fishing from diving (Figure 64d). Blue Morwong were harvested throughout the year, with higher catches spring, summer and autumn compared with winter (Figure 64e). The estimated kept and released recreational catches of Blue Morwong were similar in 2017/18 compared with previous statewide surveys (Figure 64a).

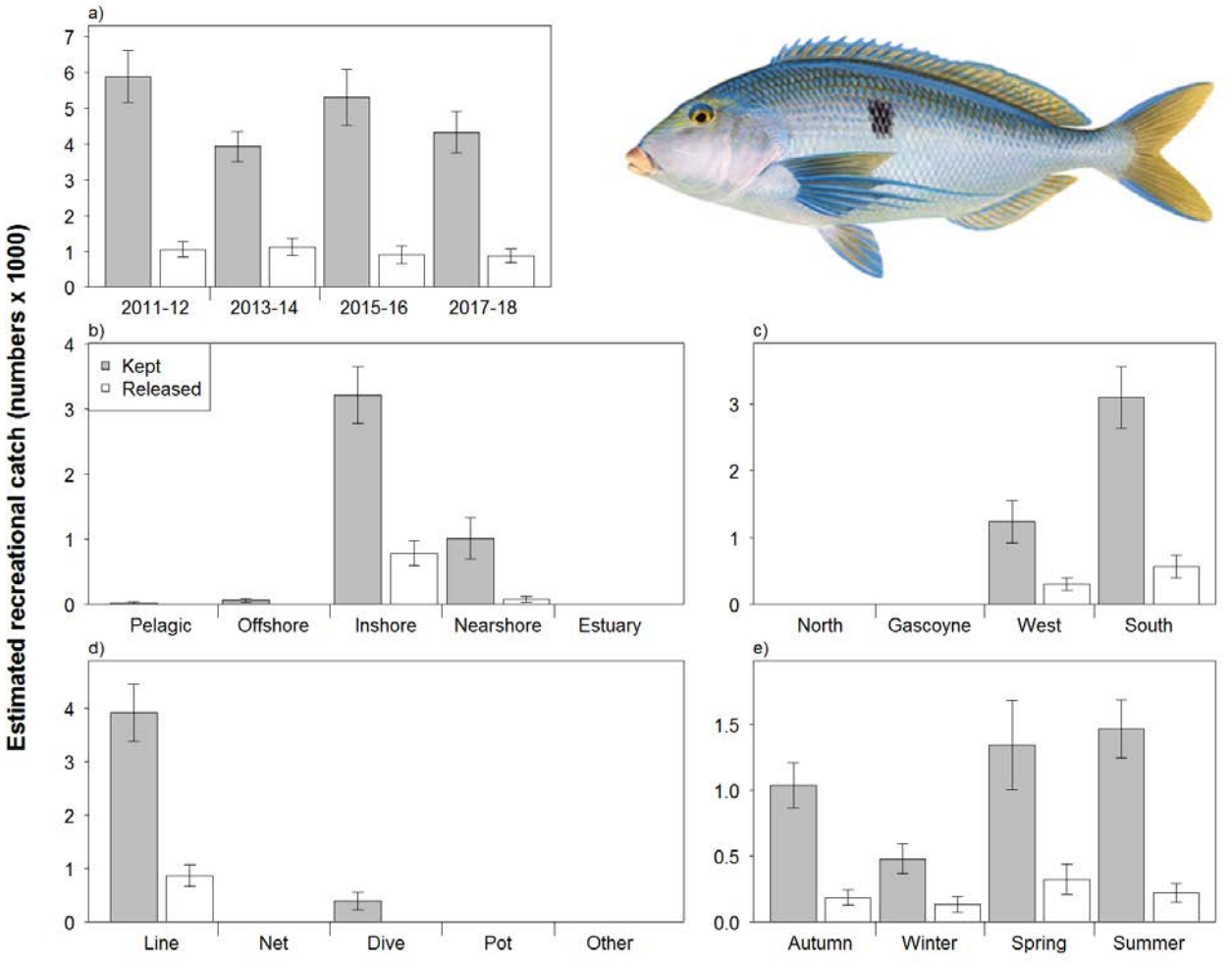


**Figure 64.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Blue Morwong in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.15 West Australian Dhufish (*Glaucosoma hebraicum*)

West Australian Dhufish is an indicator species in the West Coast bioregion. Most boat-based recreational catches of West Australian Dhufish occurred in the West Coast, with some catches in the South Coast (Figure 65c). The majority of catches were released (59%; Table 5, Figure 65a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 65b). Catches were mostly taken by line fishing (Figure 65d). West Australian Dhufish were harvested throughout the year, with higher catches in summer and autumn compared with winter and spring (Figure 65e). The estimated kept recreational catch of West Australian Dhufish in 2017/18 was higher than 2015/16, while the estimated released recreational catch in 2017/18 was lower than 2015/16 (Figure 65a).

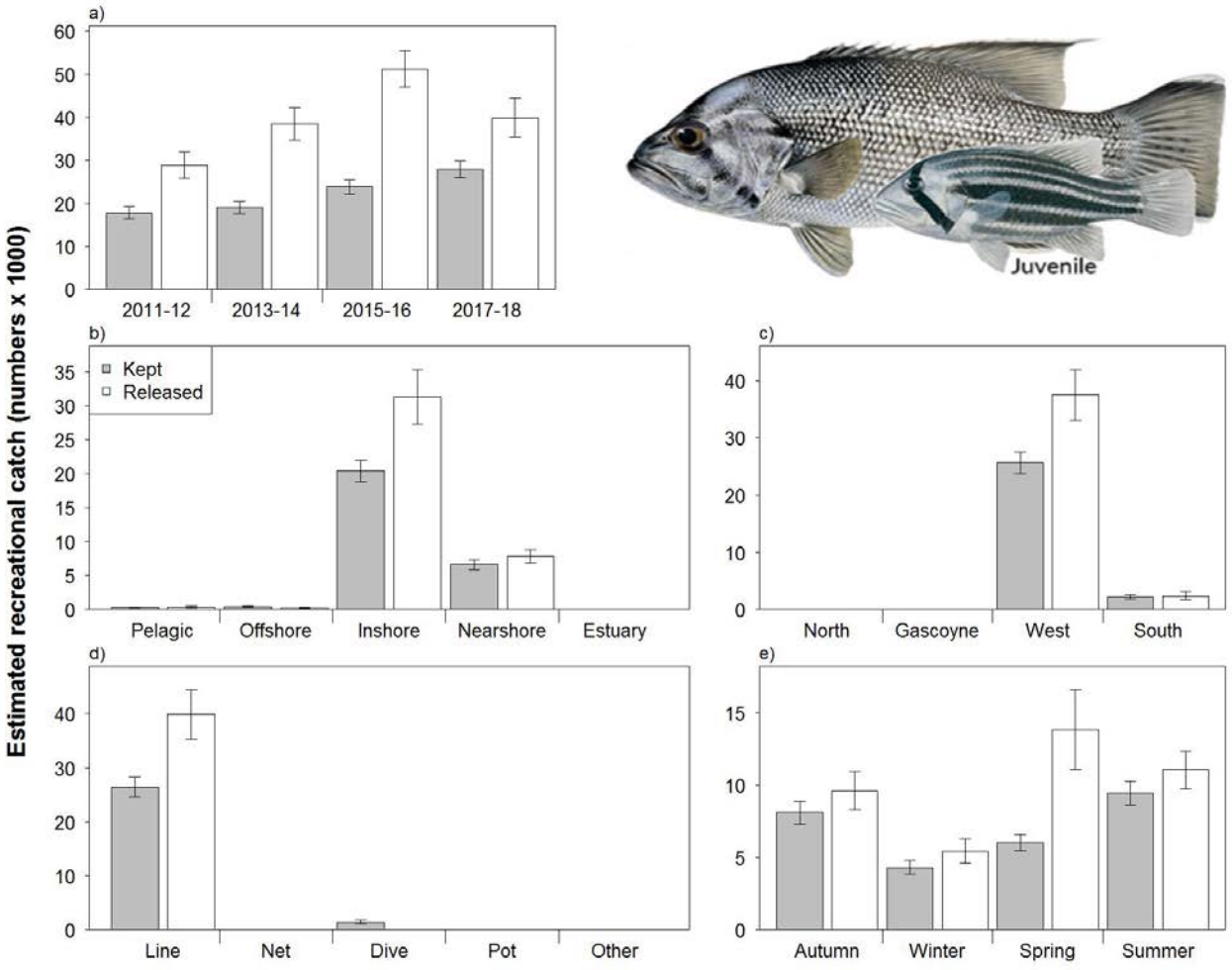


**Figure 65.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of West Australian Dhufish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.16 Bight Redfish (*Centroberyx gerrardi*)

Bight Redfish is an indicator species in the West and South Coast bioregions. Most boat-based recreational catches of Bight Redfish occurred in the South Coast, with some catches in the West Coast (Figure 66c). The majority of catches were retained (28% released; Table 4, Figure 66a) with most releases attributed to "Too Small" and "Under Size" (Table 6). Catches were taken predominantly from inshore demersal (Figure 66b). Most catches were taken by line fishing (Figure 66d). Bight Redfish were harvested throughout the year, with higher catches in spring, summer and autumn compared with winter (Figure 66e). The estimated kept and released recreational catches of Bight Redfish in 2017/18 were similar with previous statewide surveys (Figure 66a).

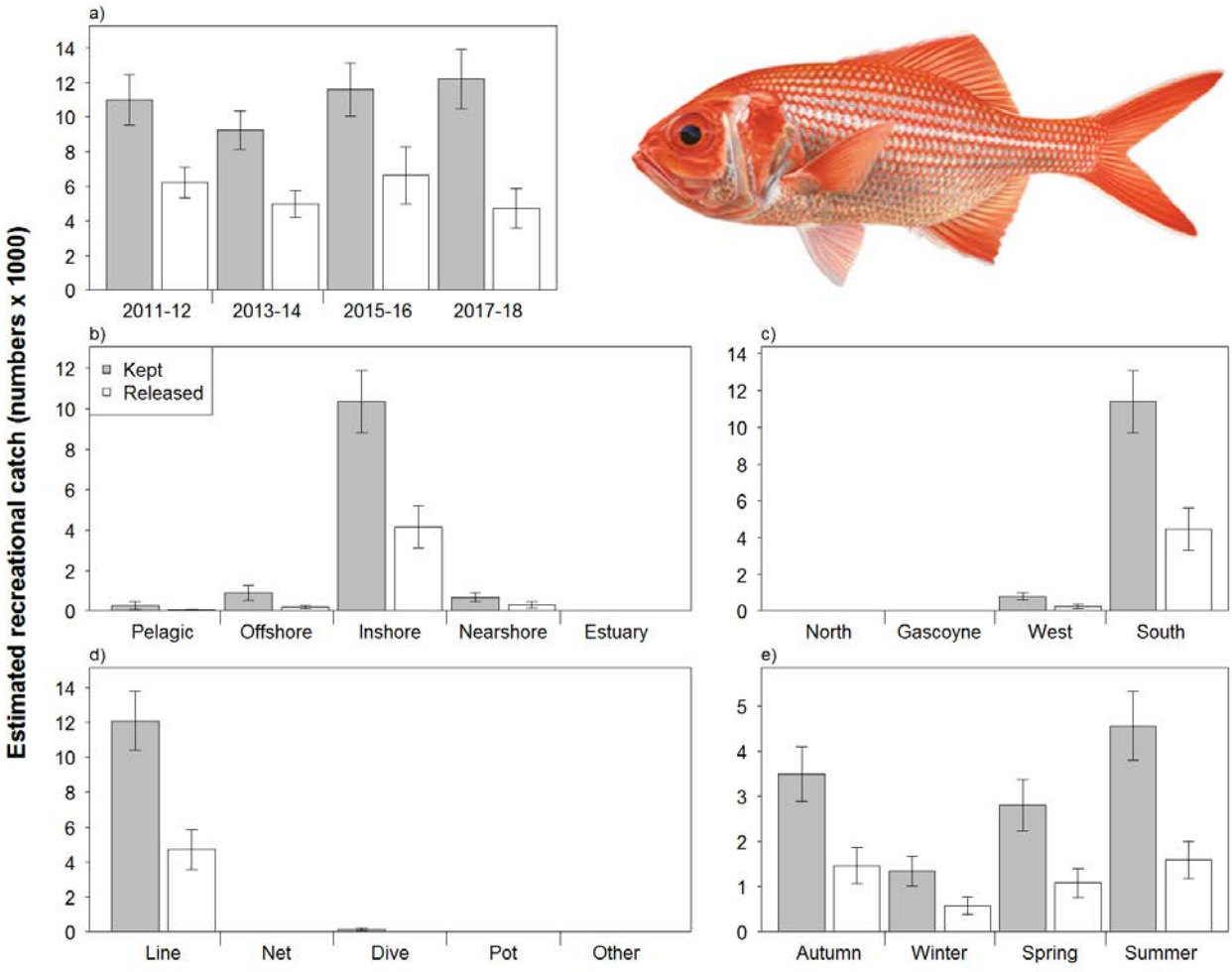


**Figure 66.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Bight Redfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.17 Swallowtail (*Centroberyx lineatus*)

Most boat-based recreational catches of Swallowtail occurred in the South Coast, with some catches in the West Coast (Figure 67c). The majority of catches were retained (43% released; Table 4, Figure 67a) with most releases attributed to "Too Many" and “Under Size” (Table 6). Catches were taken predominantly from inshore demersal (Figure 67b). All catches were taken by line fishing (Figure 67d). Swallowtail were harvested throughout the year, with highest catches in summer, followed by autumn, winter and spring (Figure 67e). The estimated kept and released recreational catches of Swallowtail in 2017/18 were similar with previous statewide surveys (Figure 67a).

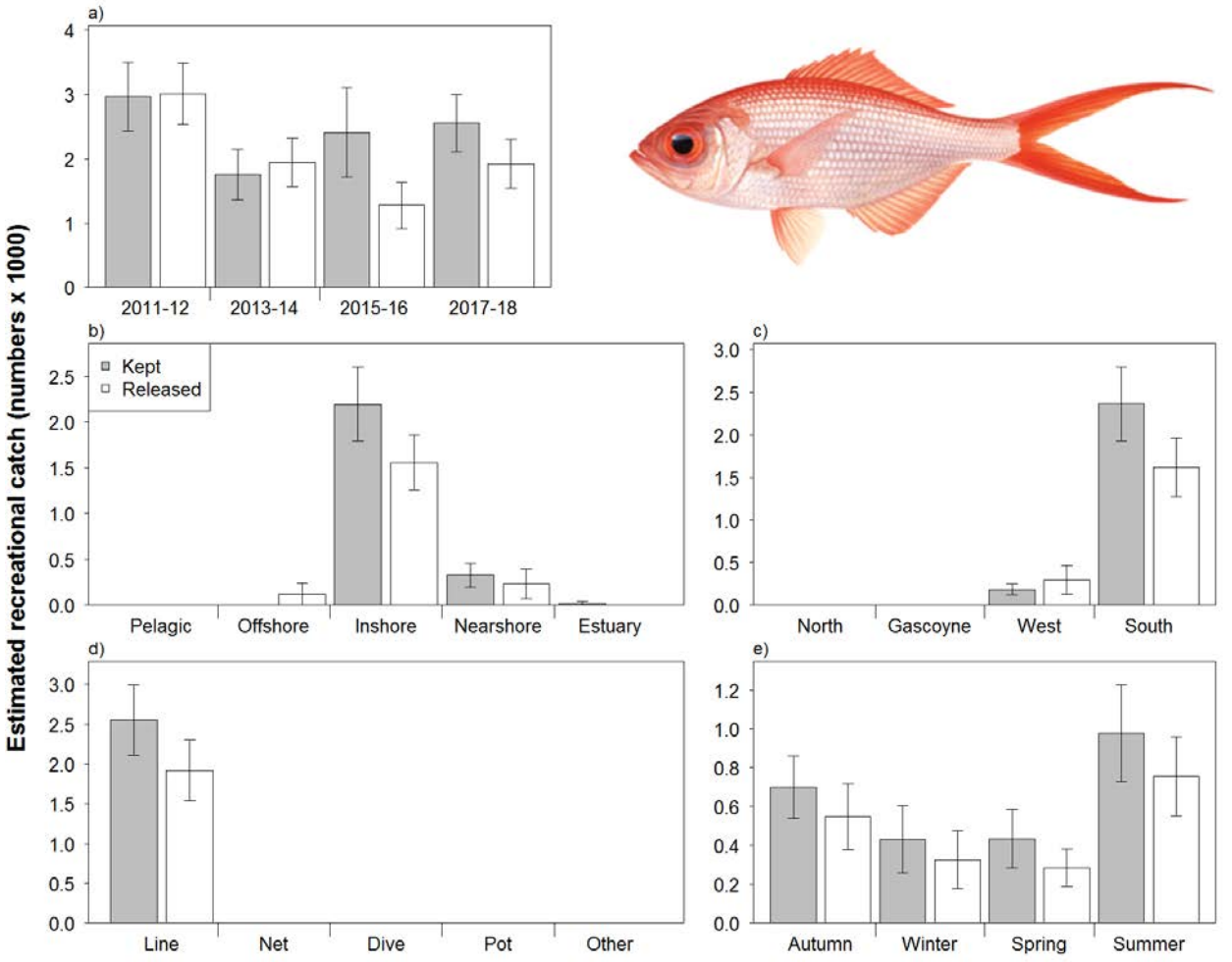


**Figure 67.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Swallowtail in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.18 Sea Sweep (*Scorpis aequipinnis*)

Most boat-based recreational catches of Sea Sweep occurred in the South Coast, with some catches in the West Coast (Figure 68c). Similar proportions of the boat-based recreational catch were kept and released (47% released; Table 4, Figure 68a) with most releases attributed to "Too Many" (Table 6). Catches were taken predominantly from inshore demersal (Figure 68b). Most catches were taken by line fishing (Figure 68d). Sea Sweep were harvested throughout the year, with highest catches in summer, followed by spring, autumn and winter (Figure 68e). The estimated kept recreational catch of Sea Sweep in 2017/18 was similar with previous statewide surveys (Figure 68a).

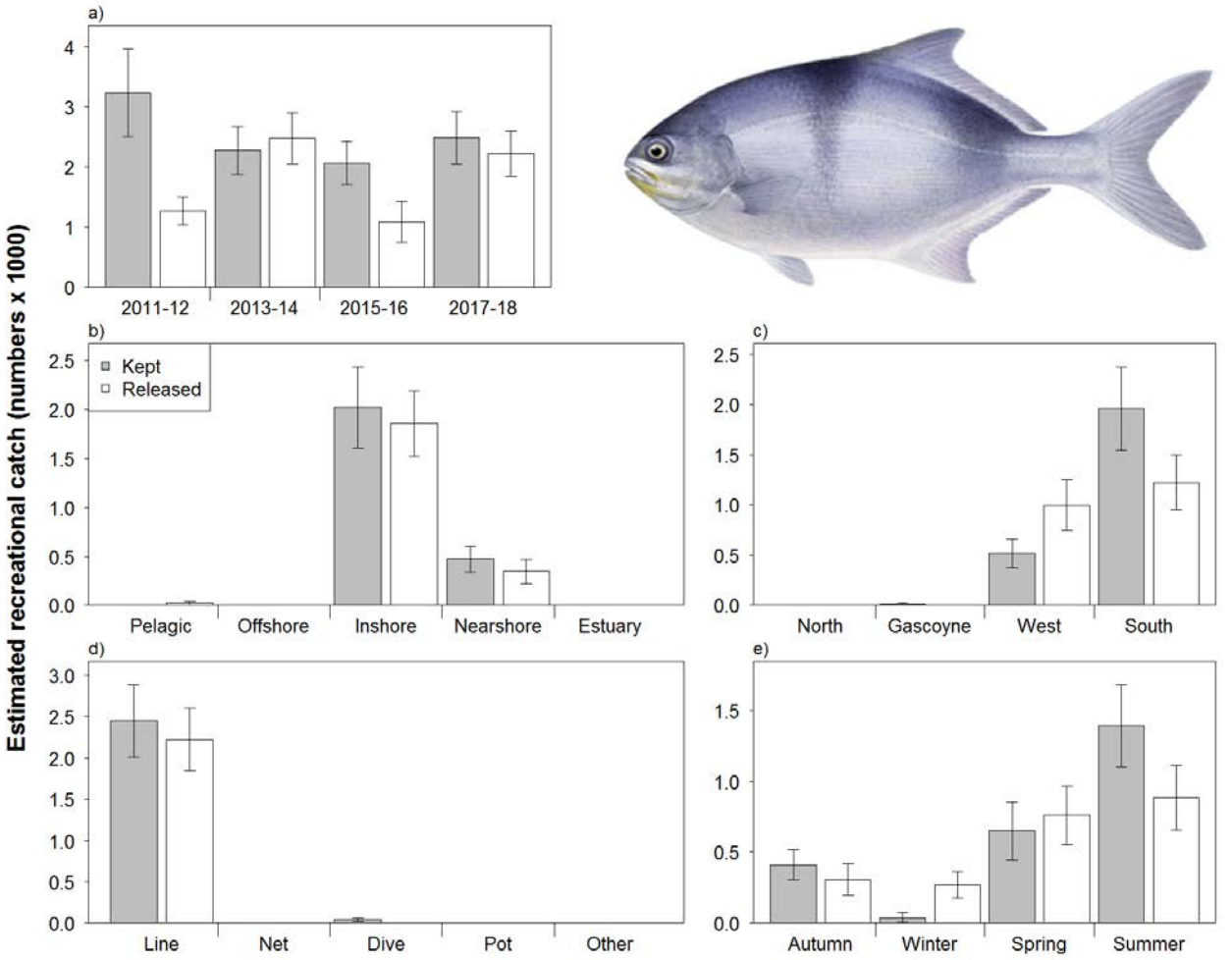


**Figure 68.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Sea Sweep in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.19 Crimson Snapper (*Lutjanus erythropterus*)

Most boat-based recreational catches of Crimson Snapper occurred in the North Coast, with some catches in the Gascoyne Coast and West Coast (Figure 69c). The majority of catches were released (63%; Table 4, Figure 69a) with most releases attributed to "Under Size" and “Over Limit” (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 69b). Most catches were taken by line fishing (Figure 69d). Crimson Snapper were harvested throughout the year (Figure 69e). The estimated kept recreational catch of Crimson Snapper in 2017/18 was similar with previous statewide surveys (Figure 69a).

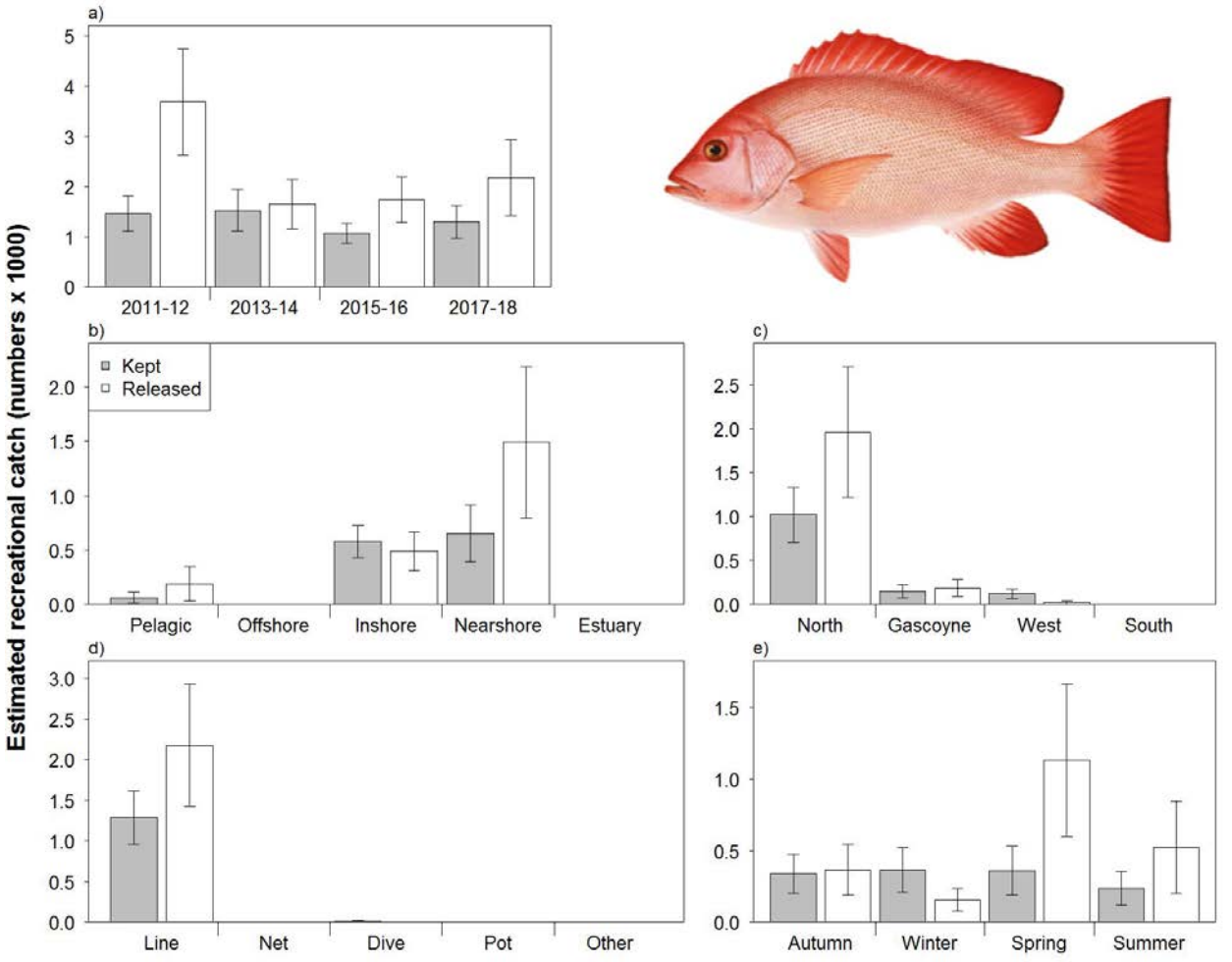


**Figure 69.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Crimson Snapper in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.20 Goldband Snapper (*Pristipomoides multidens*)

Goldband Snapper is an indicator species in the North Coast and Gascoyne Coast bioregions. Most boat-based recreational catches of Goldband Snapper occurred in the Gascoyne Coast, with some catches in the North Coast (Figure 70c). The majority of catches were retained (29% released; Table 5, Figure 70a) with most releases attributed to "Under Size" and "Other" (Table 6). Catches were taken predominantly from inshore demersal (Figure 70b). All catches were taken by line fishing (Figure 70d). Goldband Snapper were harvested mostly in autumn and winter compared with spring and summer (Figure 70e). The estimated kept recreational catch of Goldband Snapper in 2017/18 was similar with previous statewide surveys (Figure 70a).

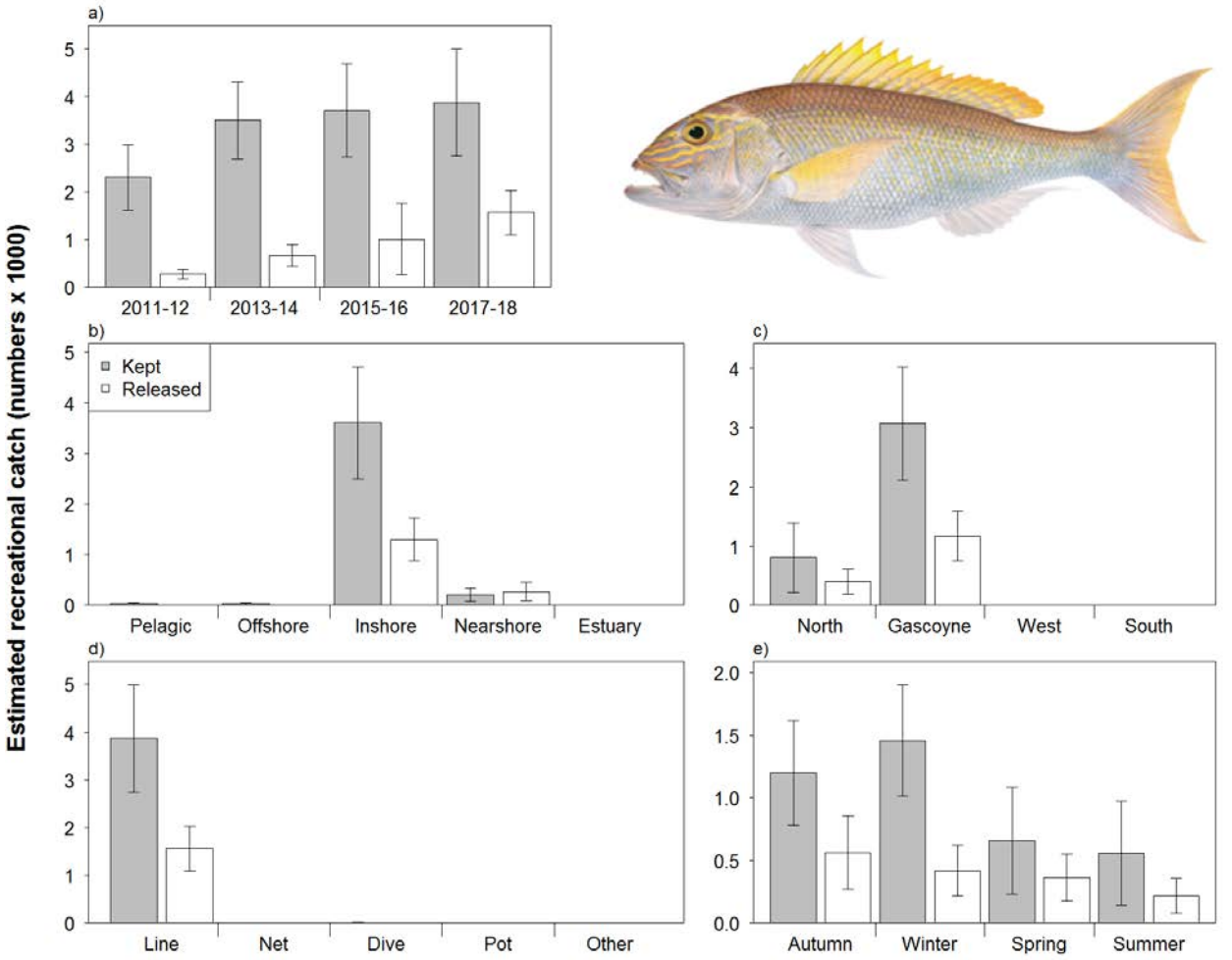


**Figure 70.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Goldband Snapper in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.21 Red Emperor (*Lutjanus sebae*)

Red Emperor is an indicator species in the Gascoyne Coast and North Coast bioregions. Most boat-based recreational catches of Red Emperor occurred in the North Coast, followed by the Gascoyne Coast and West Coast (Figure 71c). Similar proportions of the boat-based recreational catch were kept and released (52% released; Table 4, Figure 71a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal (Figure 71b). Most catches were taken by line fishing (Figure 71d). Red Emperor were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 71e). The estimated kept and released recreational catches of Red Emperor in 2017/18 were similar with previous statewide surveys (Figure 71a).

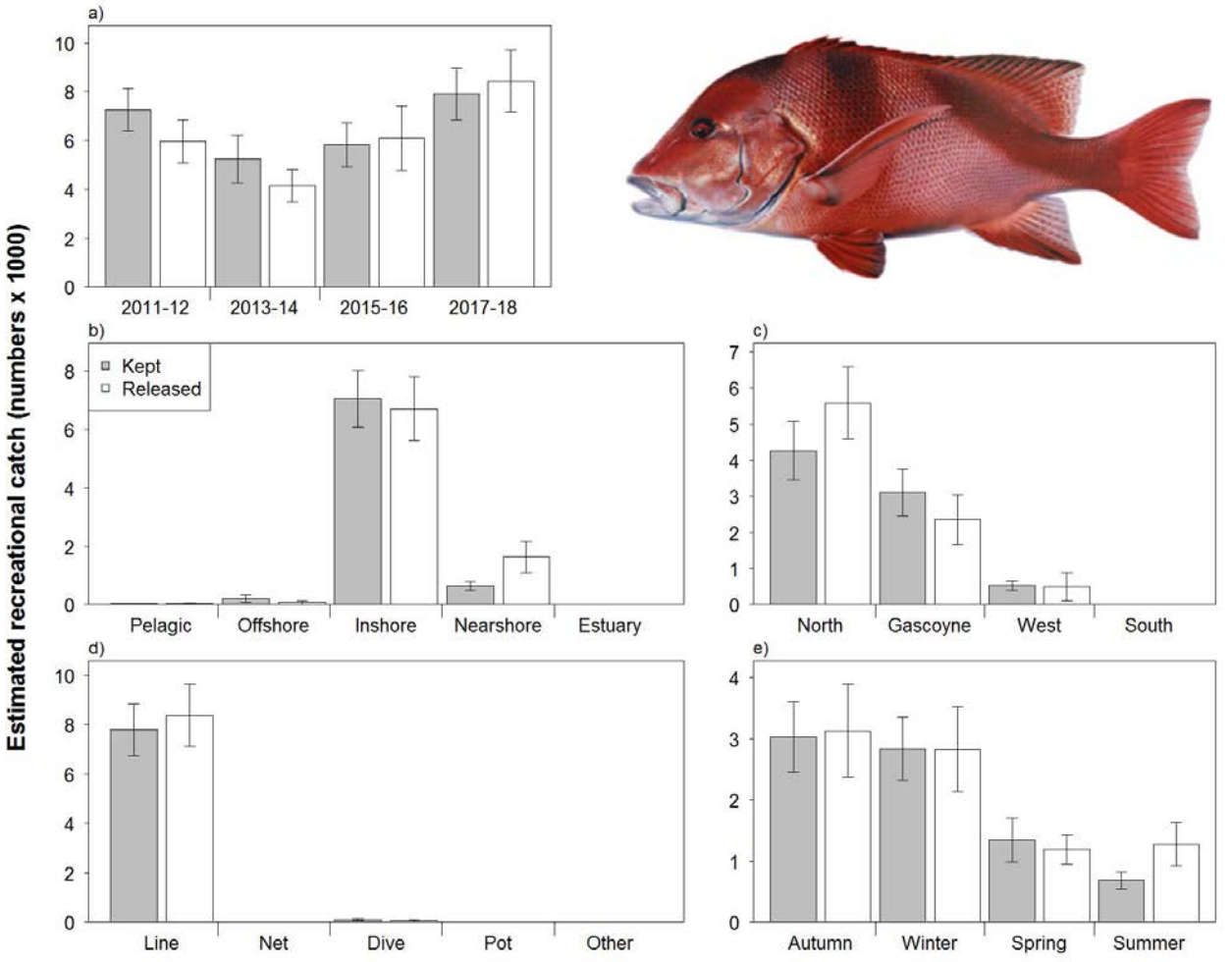


**Figure 71.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Red Emperor in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.22 Stripey Snapper (*Lutjanus carponotatus*)

Most boat-based recreational catches of Stripey Snapper occurred in the North Coast, followed by the Gascoyne Coast (Figure 72c). The majority of catches were released (69%; Table 5, Figure 72a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 72b). Most catches were taken by line fishing (Figure 72d). Stripey Snapper were harvested throughout the year, with higher catches in winter, followed by autumn, spring and summer (Figure 72e). The estimated kept recreational catch of Stripey Snapper in 2017/18 was similar with previous statewide surveys (Figure 72a). The estimated released catch in 2017/18 was similar to 2015/16, but lower than 2013/14 and 2011/12.

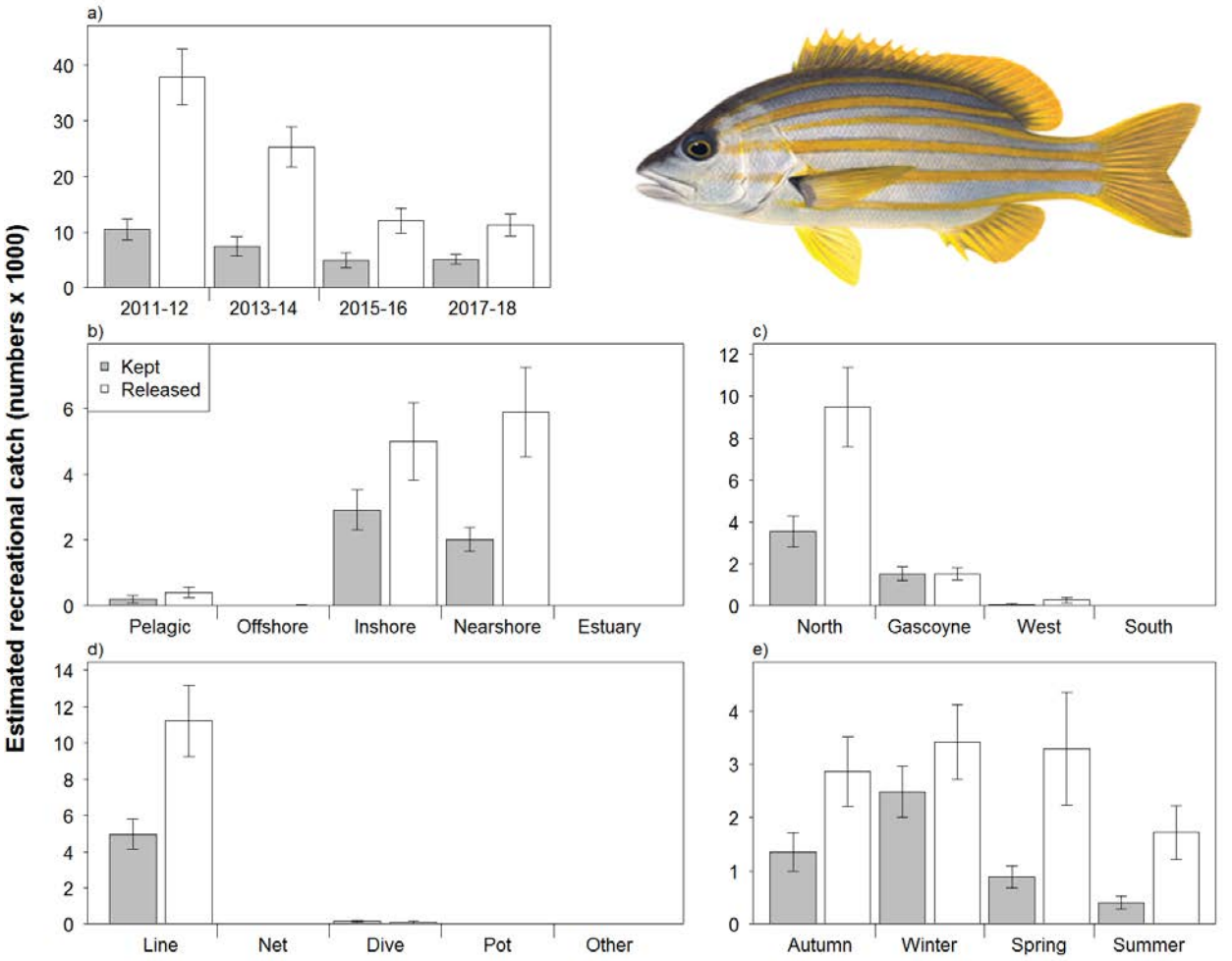


**Figure 72.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Stripey Snapper in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.23 Baldchin Groper (*Choerodon rubescens*)

Baldchin Groper is an indicator species in the West Coast bioregion. Most boat-based recreational catches of Baldchin Groper occurred in the West Coast, with some catches in the Gascoyne Coast (Figure 73c). The majority of catches were retained (35% released; Table 4, Figure 73a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 73b). Most catches were taken by line fishing (Figure 73d). Baldchin Groper were harvested throughout the year, with higher catches in summer and autumn compared with winter and spring (Figure 73e). The estimated kept recreational catch of Baldchin Groper in 2017/18 was similar with previous statewide surveys, while the estimated released recreational catch in 2017/18 was lower than 2015/16 (Figure 73a).

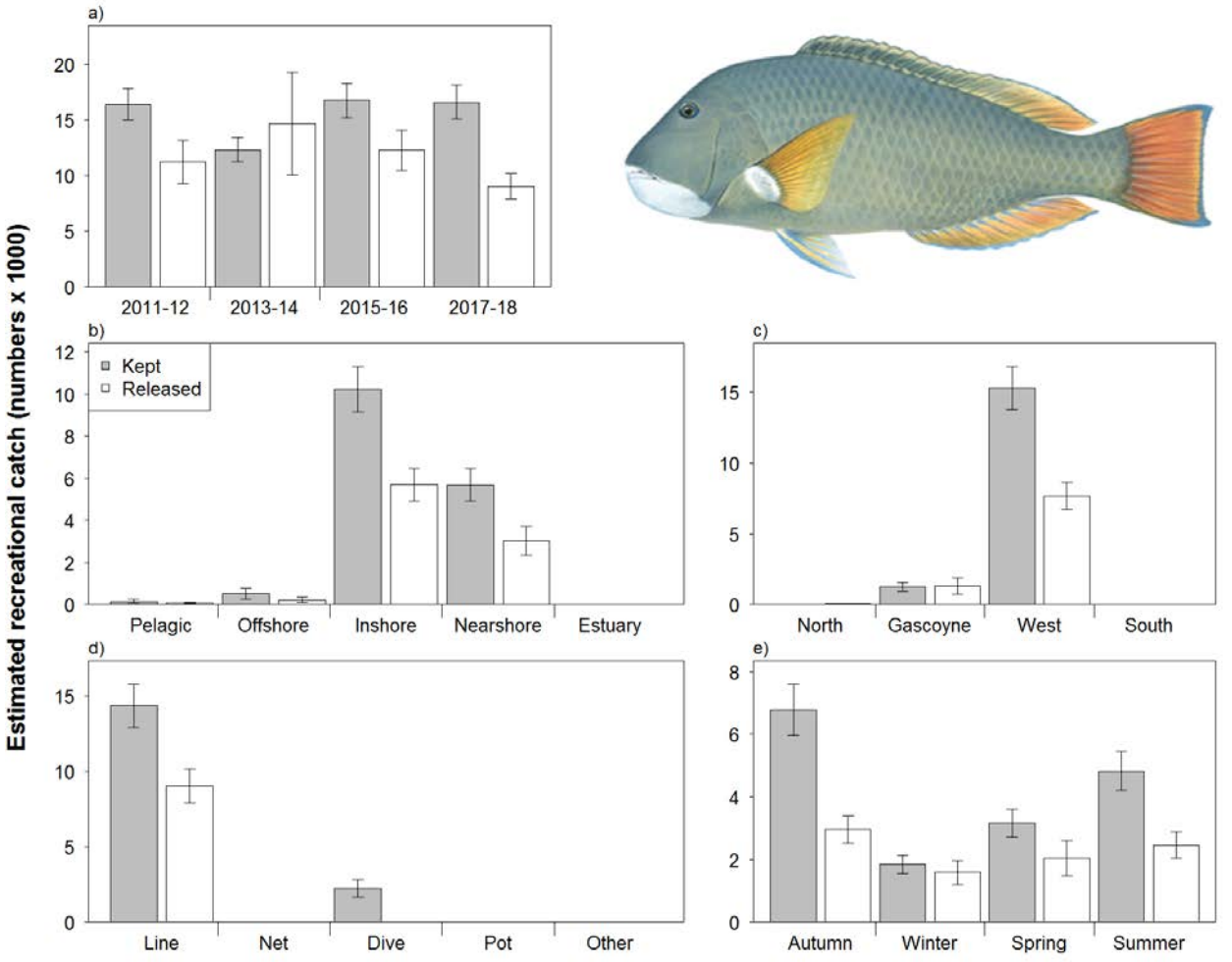


**Figure 73.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Baldchin Groper in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.24 Blackspot Tuskfish (*Choerodon schoenleinii*)

Most boat-based recreational catches of Blackspot Tuskfish occurred in the North Coast, with some catches in the Gascoyne Coast (Figure 74c). The majority of catches were retained (39% released; Table 4, Figure 74a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 74b). Most catches were taken by line fishing (Figure 74d). Blackspot Tuskfish were harvested throughout the year, with higher catches in winter and autumn compared with spring and summer (Figure 74e). The estimated kept recreational catch of Blackspot Tuskfish in 2017/18 was higher than 2015/16, but similar with 2013/14 and 2011/12 (Figure 74a). The estimated released recreational catch in 2017/18 was similar to 2015/16, but lower than 2013/14 and 2011/12.

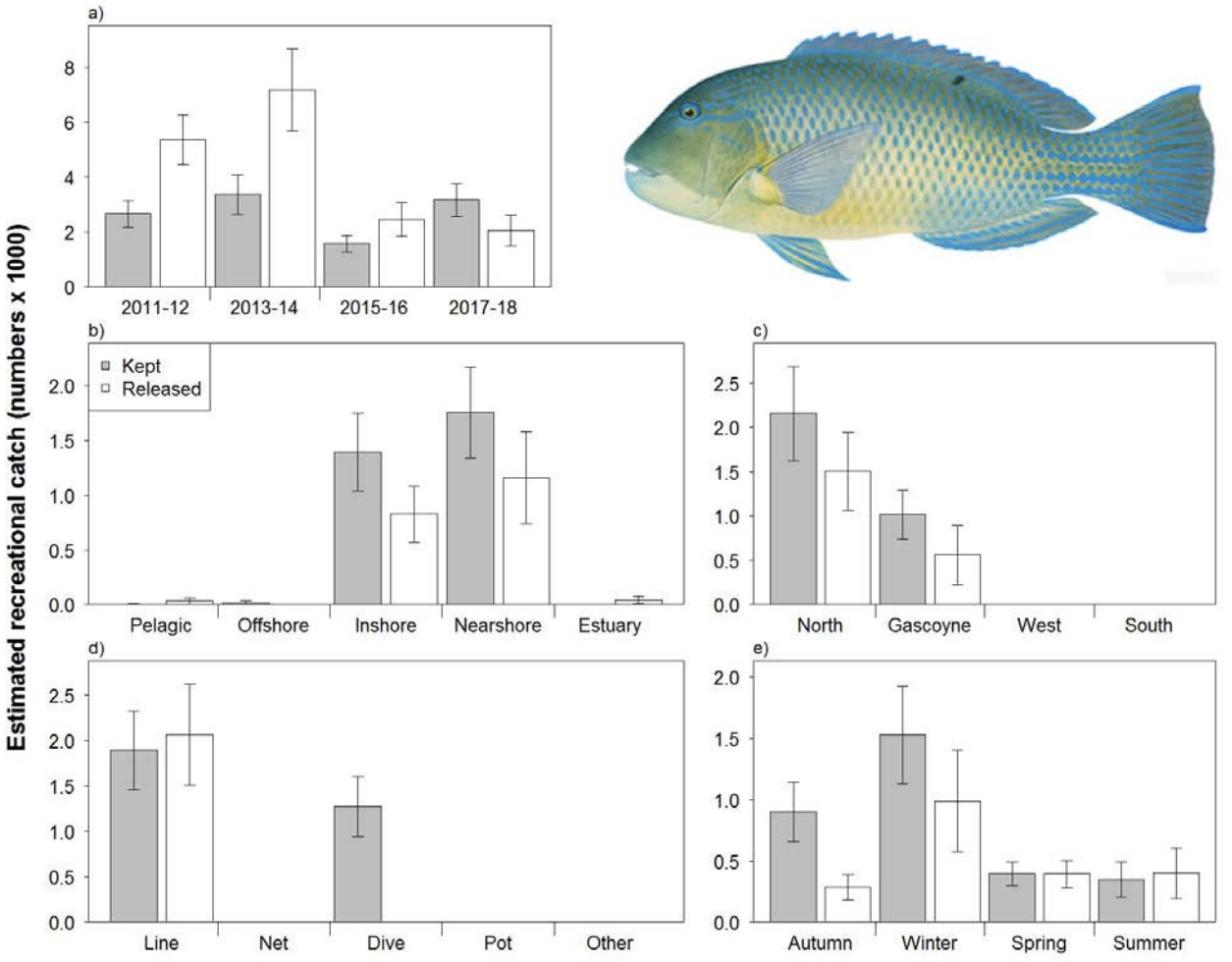


**Figure 74.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Blackspot Tuskfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.25 Blue Tuskfish (*Choerodon cyanodus*)

Most boat-based recreational catches of Blue Tuskfish occurred in the North Coast, with some catches in the Gascoyne Coast (Figure 75c). The majority of catches were retained (39% released; Table 4, Figure 75a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 75b). Most catches were taken by line fishing (Figure 75d). Blue Tuskfish were harvested throughout the year, with higher catches in winter, followed by autumn, spring and summer (Figure 75e). The estimated kept recreational catch of Blue Tuskfish in 2017/18 was similar with previous statewide surveys (Figure 75a). The estimated released recreational catch in 2017/18 was similar to 2015/16, but lower than 2013/14 and 2011/12.

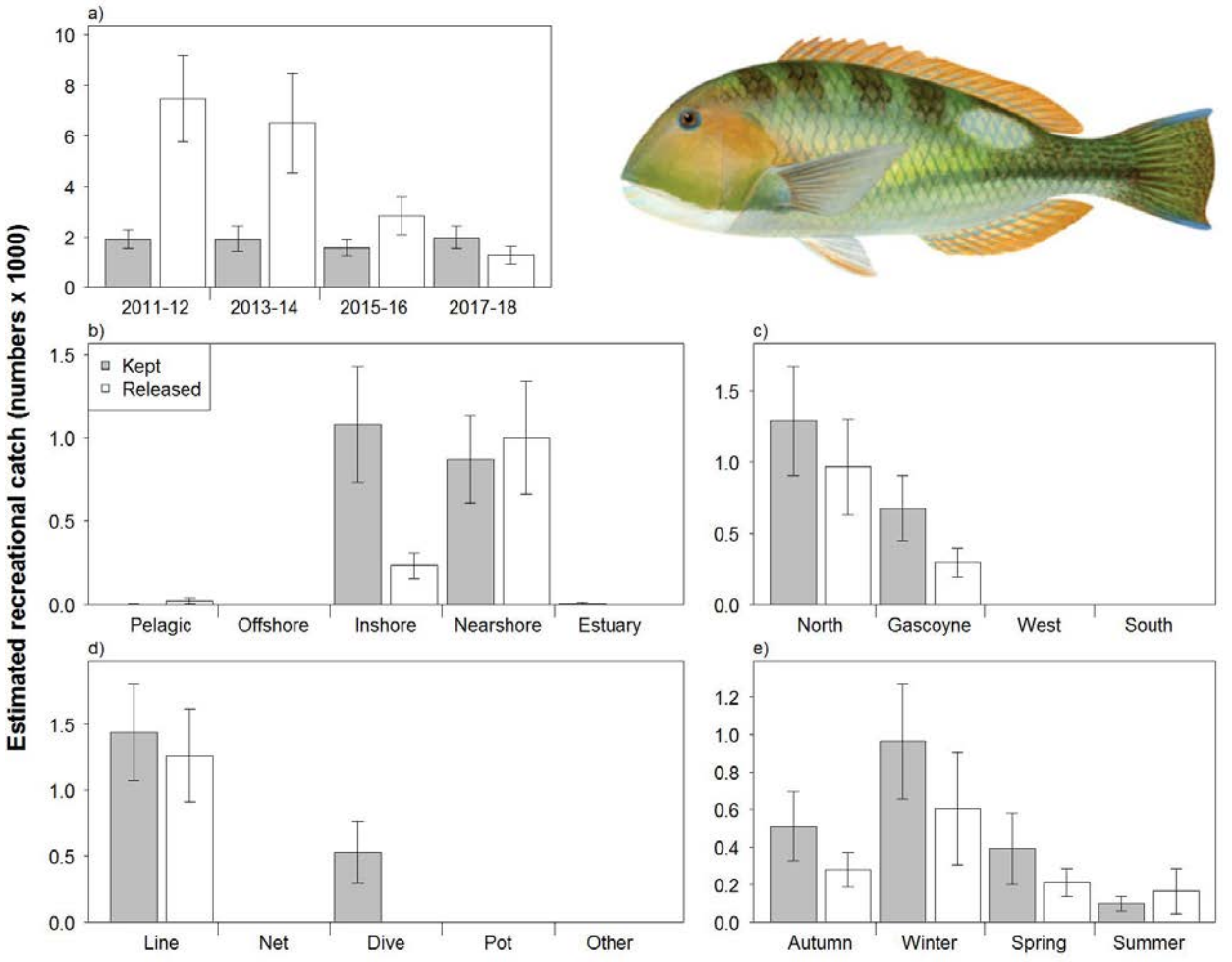


**Figure 75.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Blue Tuskfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.3.26 Foxfish (*Bodianus frenchii*)

Most boat-based recreational catches of Foxfish occurred in the West Coast, with some catches in the South Coast (Figure 76c). The majority of catches were retained (43% released; Table 4, Figure 76a) with most releases attributed to "Under Size" and "Too Many" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 76b). Most catches were taken by line fishing (Figure 76d). Foxfish were harvested throughout the year, with higher catches in spring and summer compared with autumn and winter (Figure 76e). The estimated kept recreational catch of Foxfish in 2017/18 was similar with previous statewide surveys (Figure 76a).

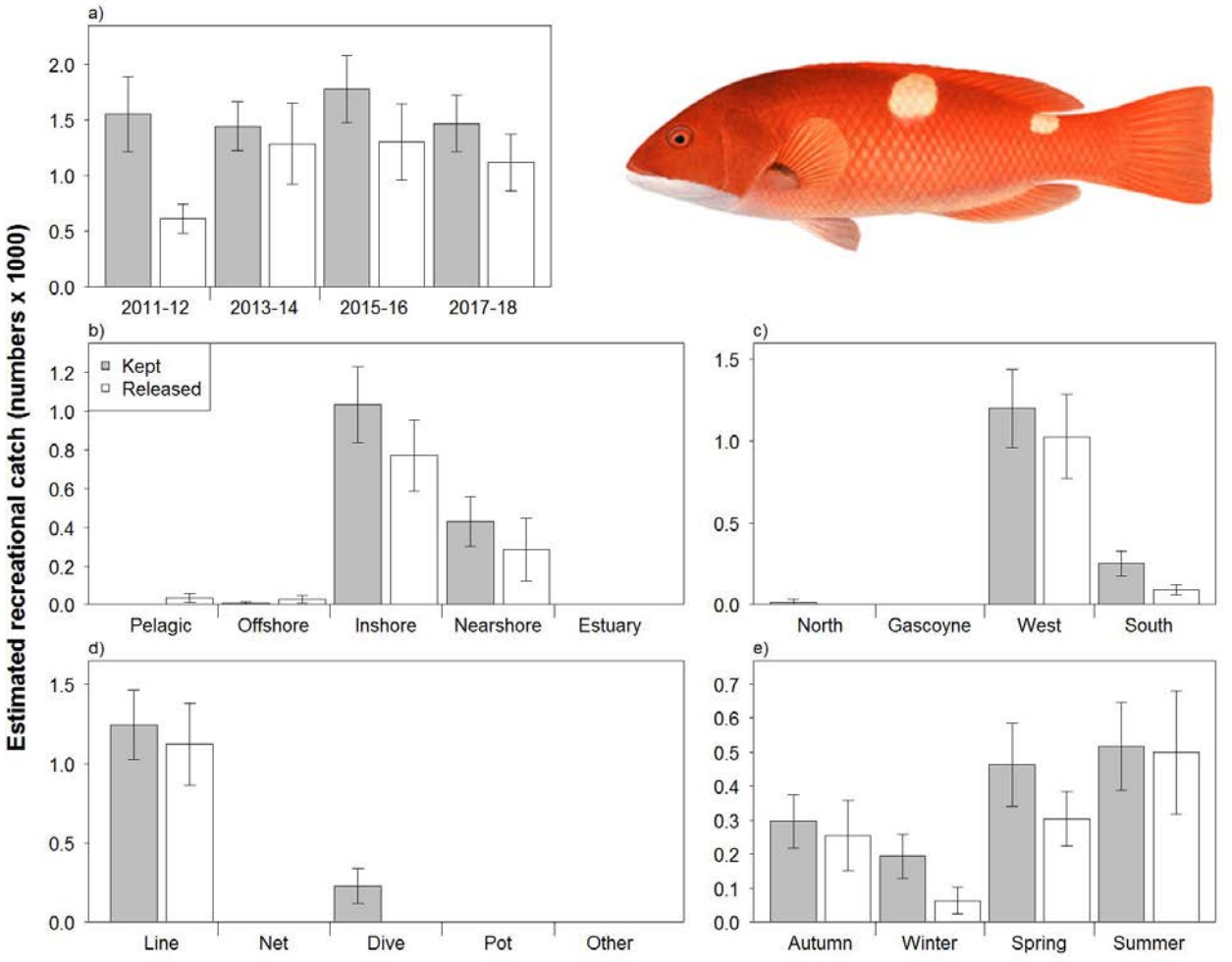


**Figure 76.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Foxfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

## 6.4 Offshore Demersal

### 6.4.1 Eightbar Grouper (*Hyporthodus octofasciatus*)

Eightbar Grouper is an indicator species in the North Coast, Gascoyne Coast, West Coast bioregions. Most boat-based recreational catches of Eightbar Grouper occurred in the West Coast and Gascoyne Coast, with some catches in the South Coast (Figure 77c). The majority of catches were retained (31% released; Table 4, Figure 77a). Catches were taken predominantly from inshore demersal Figure 77b). All catches were taken by line fishing (Figure 77d). Eightbar Grouper were harvested throughout the year, with higher catches in summer, followed by winter, autumn and spring (Figure 77e). The estimated kept recreational catch of Eightbar Grouper in 2017/18 was similar to 2015/16, but higher than 2013/14 and 2011/12; however, the catch estimates for this species have high uncertainty (Figure 77a).

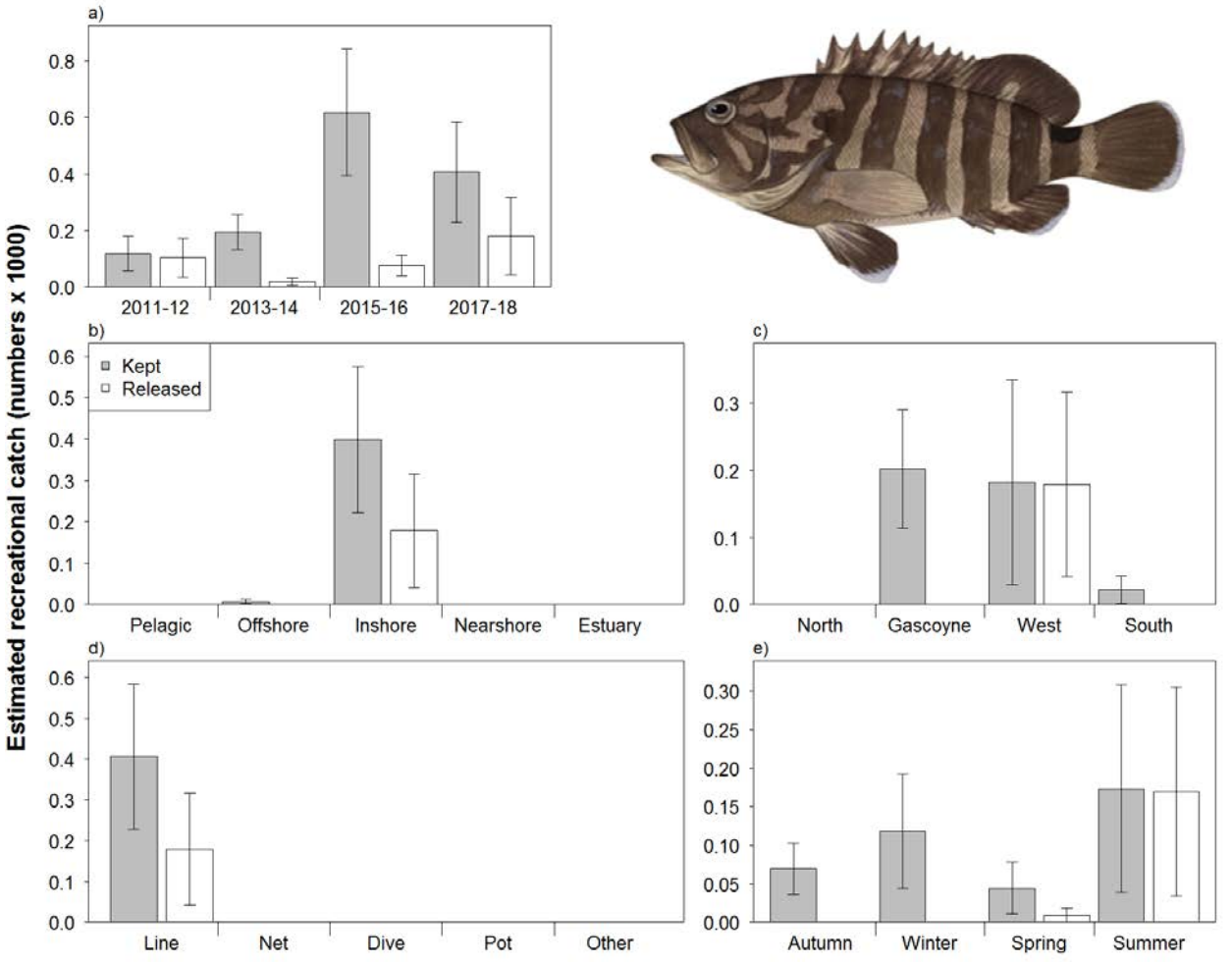


**Figure 77.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Eightbar Grouper in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.4.2 Ruby Snapper (*Etelis carbunculus*)

Ruby Snapper is an indicator species in the North Coast and Gascoyne Coast bioregions. Most boat-based recreational catches of Ruby Snapper occurred in the Gascoyne Coast, with some catches in the North Coast (Figure 78c). The majority of catches were retained (14% released; Table 4, Figure 78a). Catches were taken predominantly from inshore demersal and offshore demersal (Figure 78b). All catches were taken by line fishing (Figure 78d). Ruby Snapper were harvested throughout the year, with higher catches in autumn compared with winter, spring and summer (Figure 78e). The estimated kept recreational catch of Ruby Snapper in 2017/18 was lower than 2015/16 and 2013/14, but similar with 2011/12, however, the catch estimates for this species have high uncertainty (Figure 78a).

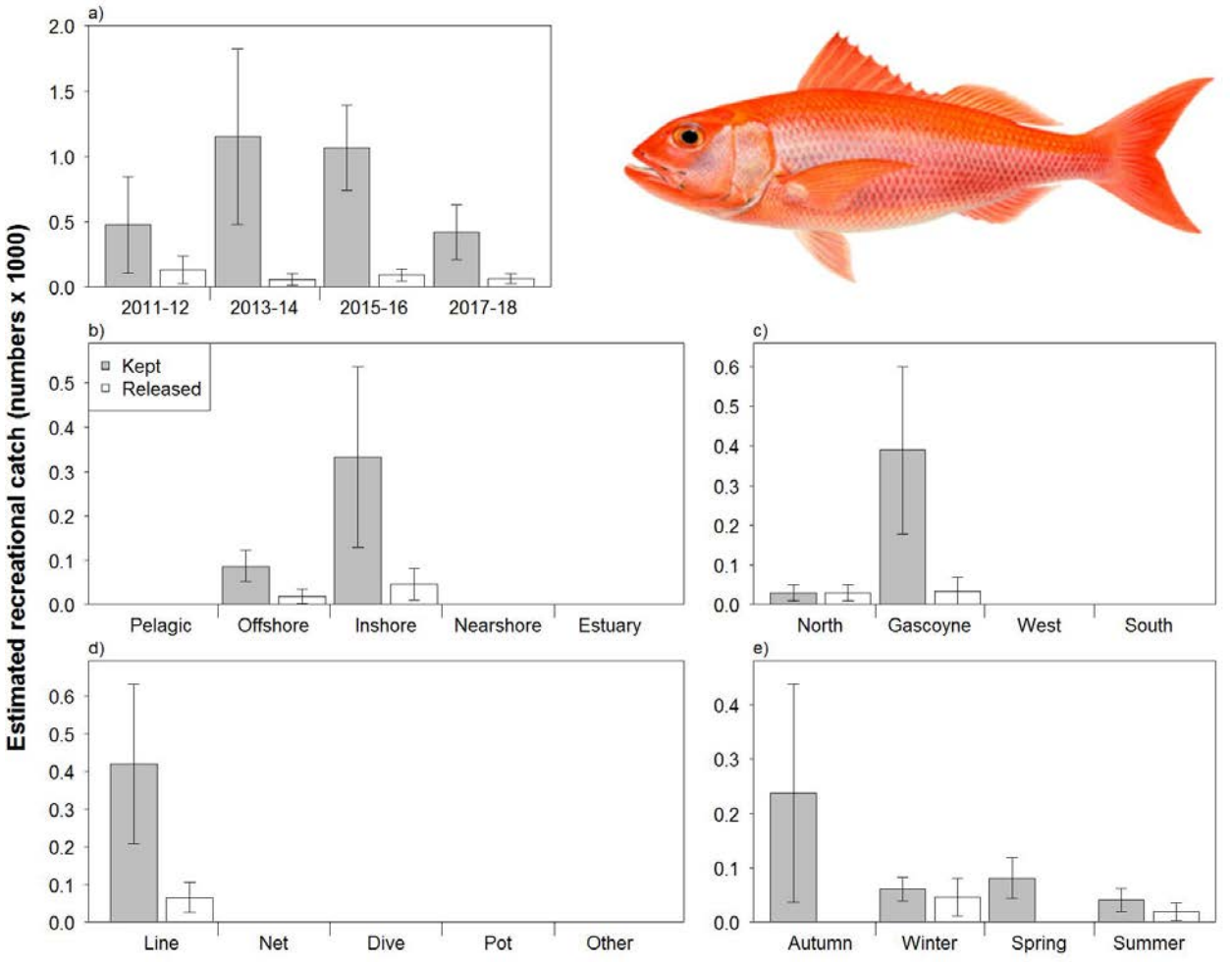


**Figure 78.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Ruby Snapper in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.4.3 Hapuku (*Polyprion oxygeneios*)

Hapuku is an indicator species in the West Coast and South Coast bioregions. Most boat-based recreational catches of Hapuku occurred in the West Coast, followed by the South Coast (Figure 79c). The majority of catches were retained (4% released; Table 4, Figure 79a). Catches were taken predominantly from offshore demersal and inshore demersal (Figure 79b). All catches were taken by line fishing (Figure 79d). Hapuku were harvested throughout the year, with higher catches in autumn compared with spring, summer and winter (Figure 79e). The estimated kept recreational catch of Hapuku in 2017/18 was similar to 2015/16, and higher than 2013/14 and 2011/12; however, the catch estimates for this species have high uncertainty (Figure 79a).

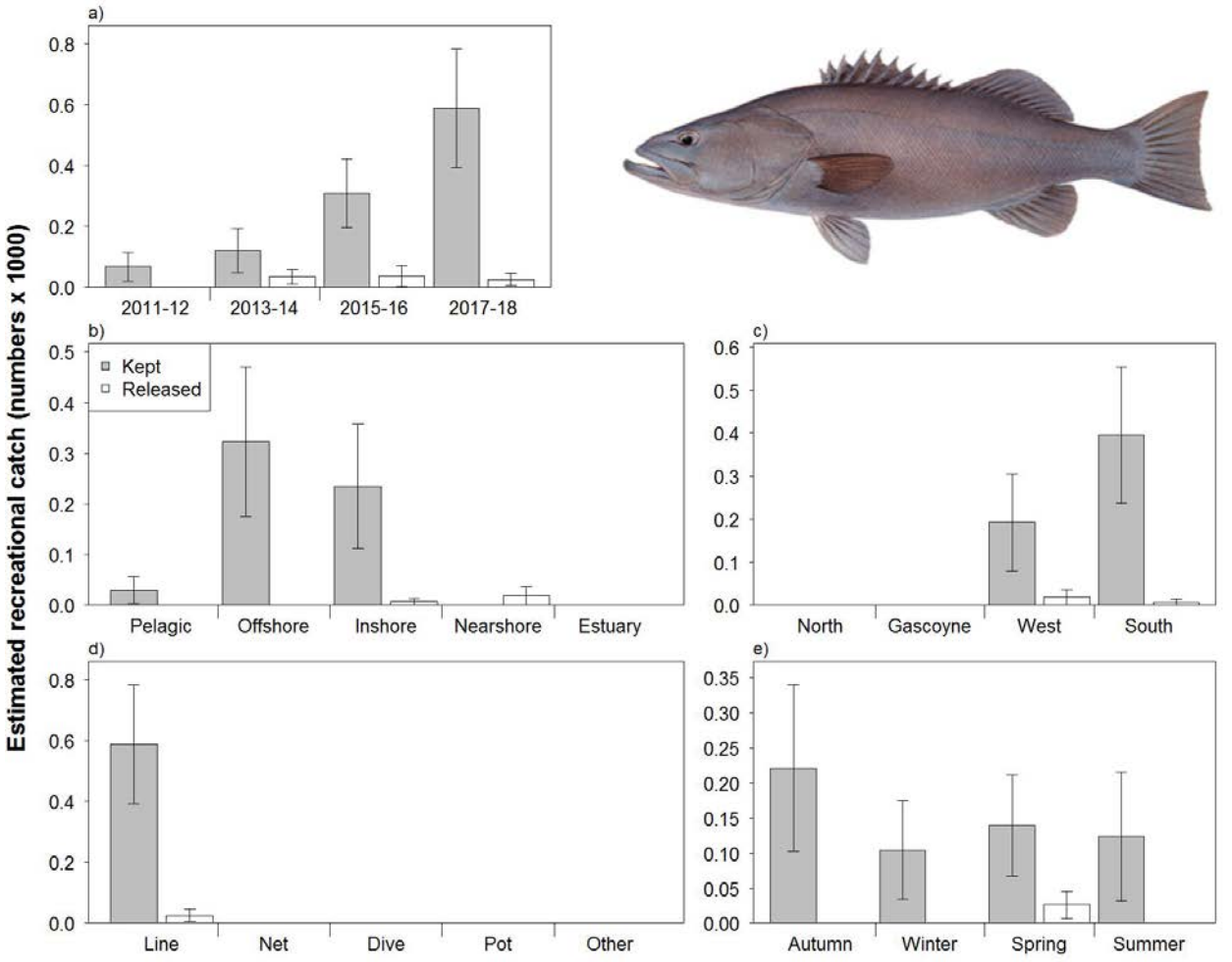


**Figure 79.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Hapuku in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

## 6.5 Pelagic

### 6.5.1 Billfish (Family Istiophoridae)

Billfish include Black Marlin (*Makaira indica*), Blue Marlin (*M. nigricans*), Striped Marlin (*Tetrapturus audax*) and Sailfish (*Istiophorus platypterus*). Most boat-based recreational catches of Billfish occurred in the Gascoyne Coast, followed by the North Coast (Figure 80c). The majority of catches were released (86% or higher; Table 4, Figure 80a). Catches were taken predominantly from offshore demersal, inshore demersal and pelagic (Figure 80b). All catches were taken by line fishing (Figure 80d). Billfish were caught throughout the year, with similar catches each season (Figure 80e). The estimated kept and released recreational catches of Billfish in 2017/18 were similar with previous statewide surveys; however, the uncertainty for this species group is high (Figure 80a).

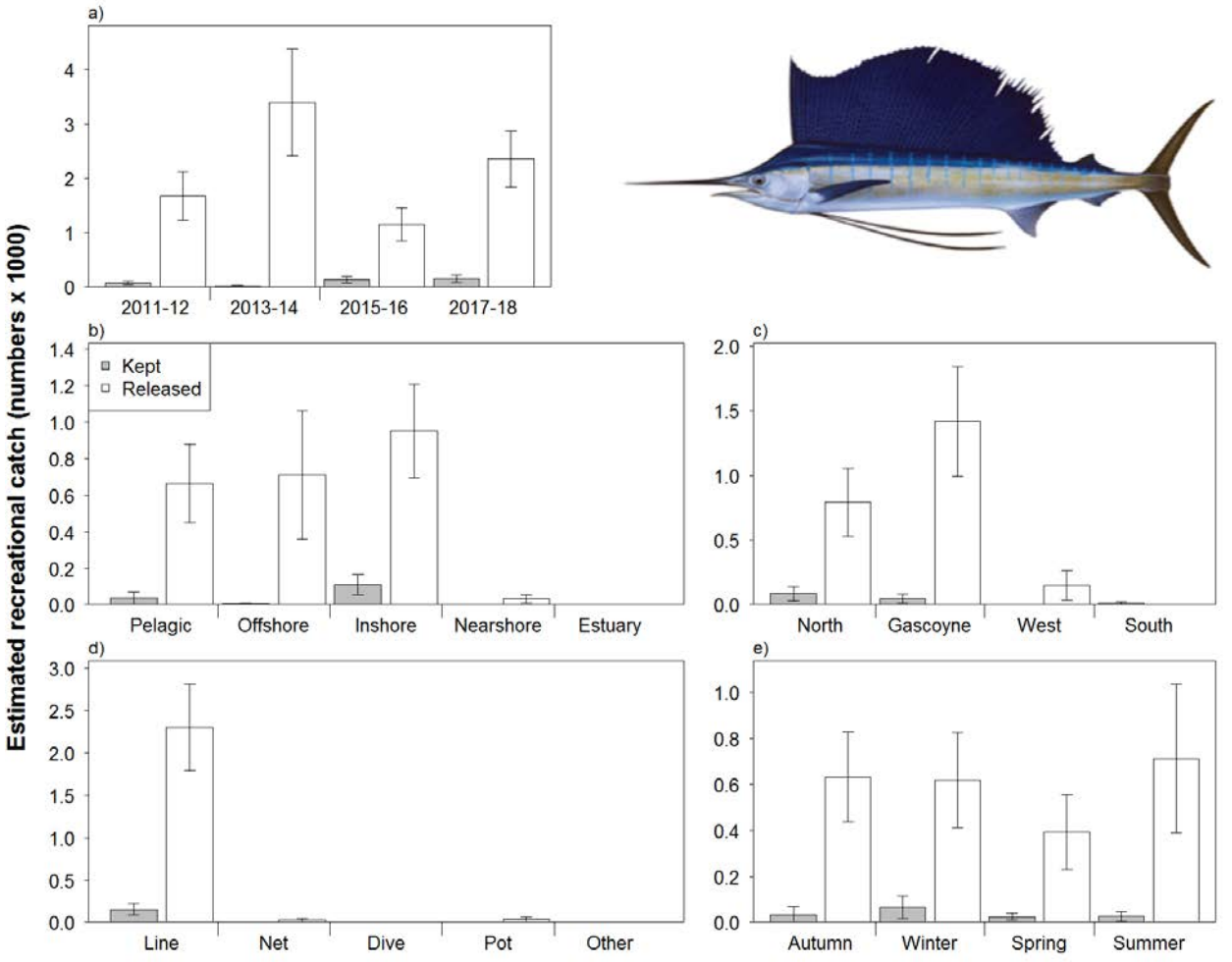


**Figure 80.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Billfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.2 Cobia (*Rachycentron canadum*)

Most boat-based recreational catches of Cobia occurred in the Gascoyne Coast, with some catches in the North Coast and West Coast (Figure 81c). The majority of catches were retained (33% released; Table 4, Figure 81a) with most releases attributed to "Under Size" and “Other” (Table 6). Catches were taken predominantly from inshore demersal (Figure 81b). Most catches were taken by line fishing (Figure 81d). Cobia were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 81e). The estimated kept and released recreational catches of Cobia were similar with previous statewide surveys (Figure 81a).

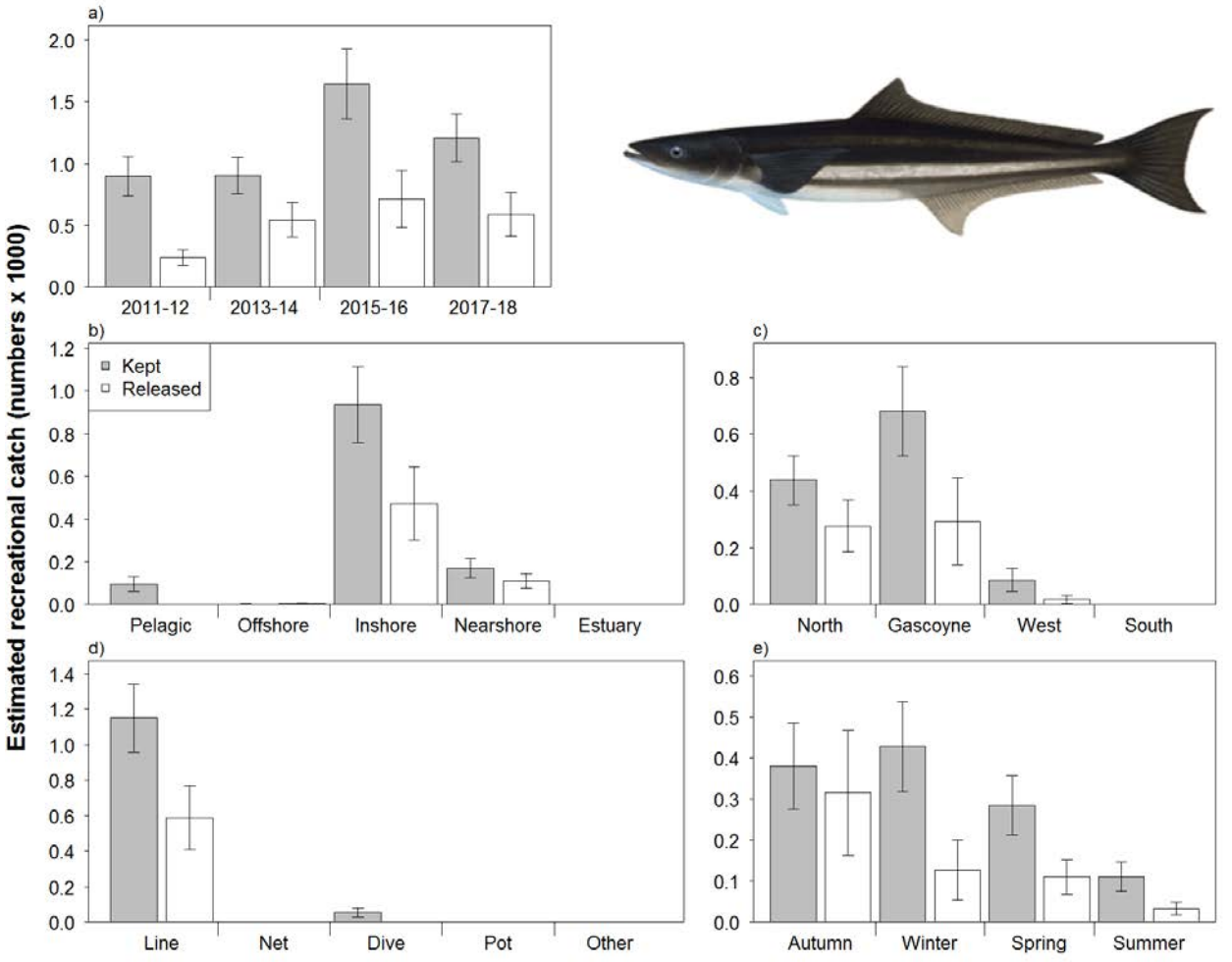


**Figure 81.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Cobia in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.3 Samsonfish (*Seriola hippos*)

Samsonfish is an indicator species in the West Coast bioregion. Most boat-based recreational catches of Samsonfish occurred in the West Coast, followed by the South Coast (Figure 82c). The majority of catches were released (79%; Table 4, Figure 82a) and attributed to "Too Many" and "Other" (Table 6). Catches were taken from inshore demersal (Figure 82b). Catches were mostly taken by line fishing (Figure 82d). Samsonfish were harvested throughout the year, with higher catches in spring compared with summer, winter and autumn (Figure 82e). The estimated kept and released recreational catches of Samsonfish in 2017/18 were similar with previous statewide surveys (Figure 82a).

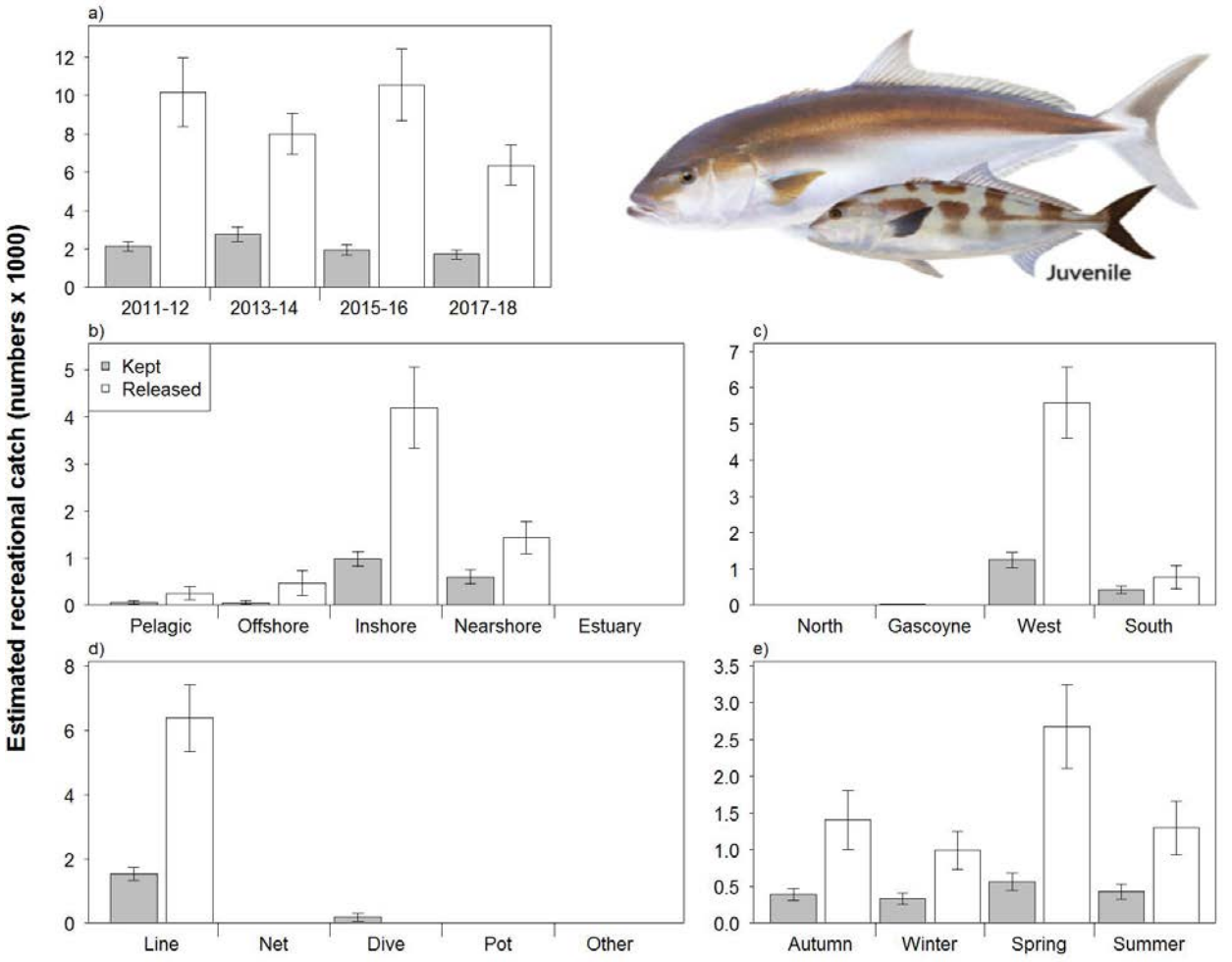


**Figure 82.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Samsonfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.4 Yellowtail Kingfish (*Seriola lalandi*)

Most boat-based recreational catches of Yellowtail Kingfish occurred in the Gascoyne Coast and West Coast, with some catches in the North Coast (Figure 83c). Similar proportions of the boat-based recreational catch were kept and released (55% released; Table 4, Figure 83a) with most releases attributed to "Catch and Release" (Table 6). Catches were taken predominantly from inshore demersal and pelagic (Figure 83b). Most catches were taken by line fishing (Figure 83d). Yellowtail Kingfish were harvested throughout the year, with lower catches in winter (Figure 83e). The estimated kept recreational catch of Yellowtail Kingfish in 2017/18 was similar to 2015/16 and 2013/14, but lower than 2011/12 (Figure 83a).

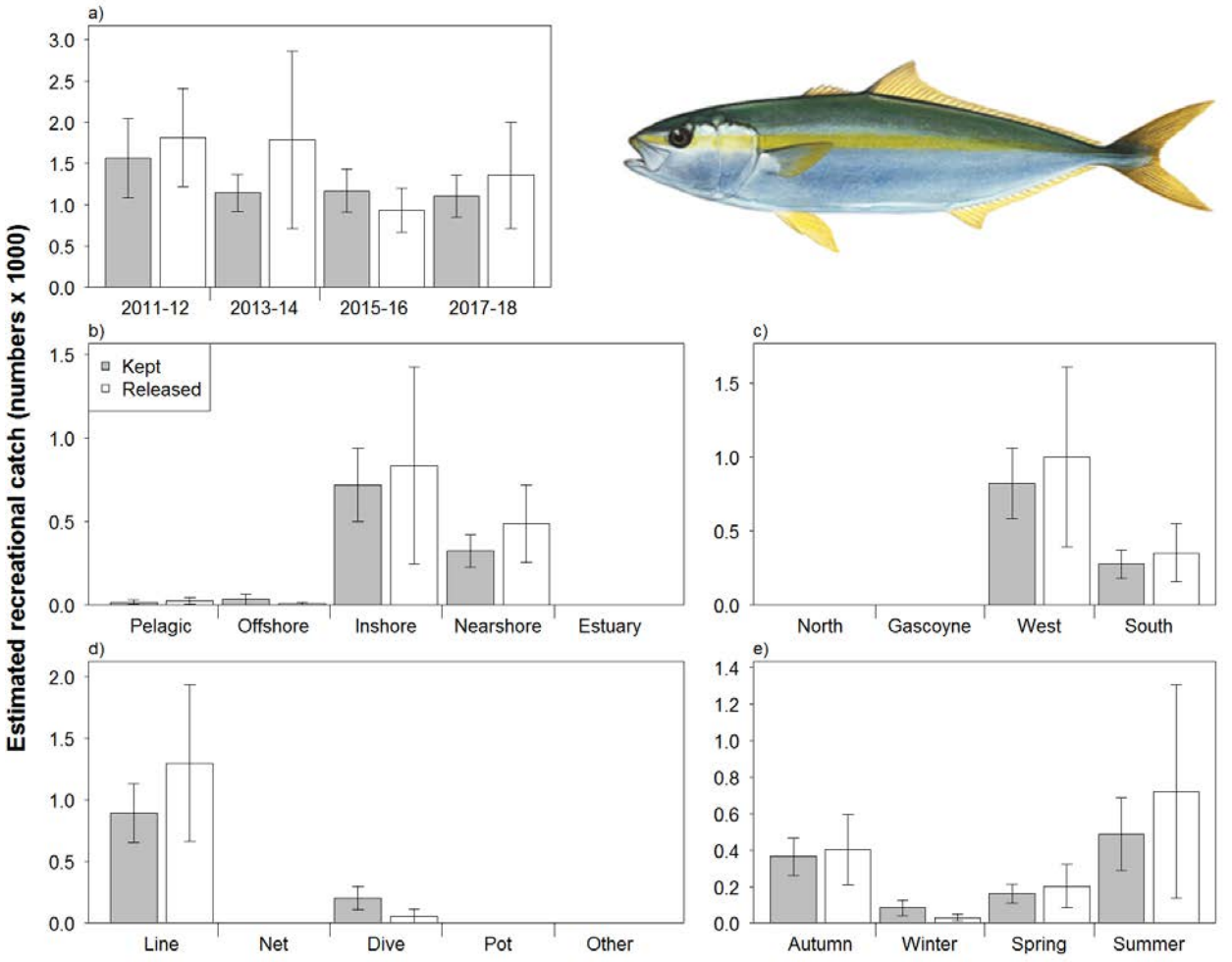


**Figure 83.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Yellowtail Kingfish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.5 Grey Mackerel (*Scomberomorus semifasciatus*)

Grey Mackerel is an indicator species in the North Coast and Gascoyne Coast bioregions. Most boat-based recreational catches of Grey Mackerel occurred in the North Coast, with some catches in the Gascoyne Coast and West Coast (Figure 84c). The majority of catches were retained (40% released; Table 4, Figure 84a). Most catches were taken by line fishing (Figure 84d). Grey Mackerel were harvested throughout the year, with higher catches in winter and spring (Figure 84e). The estimated kept recreational catch of Grey Mackerel in 2017/18 was higher than previous statewide surveys, however, the catch estimates for this species have high uncertainty (Figure 84a).

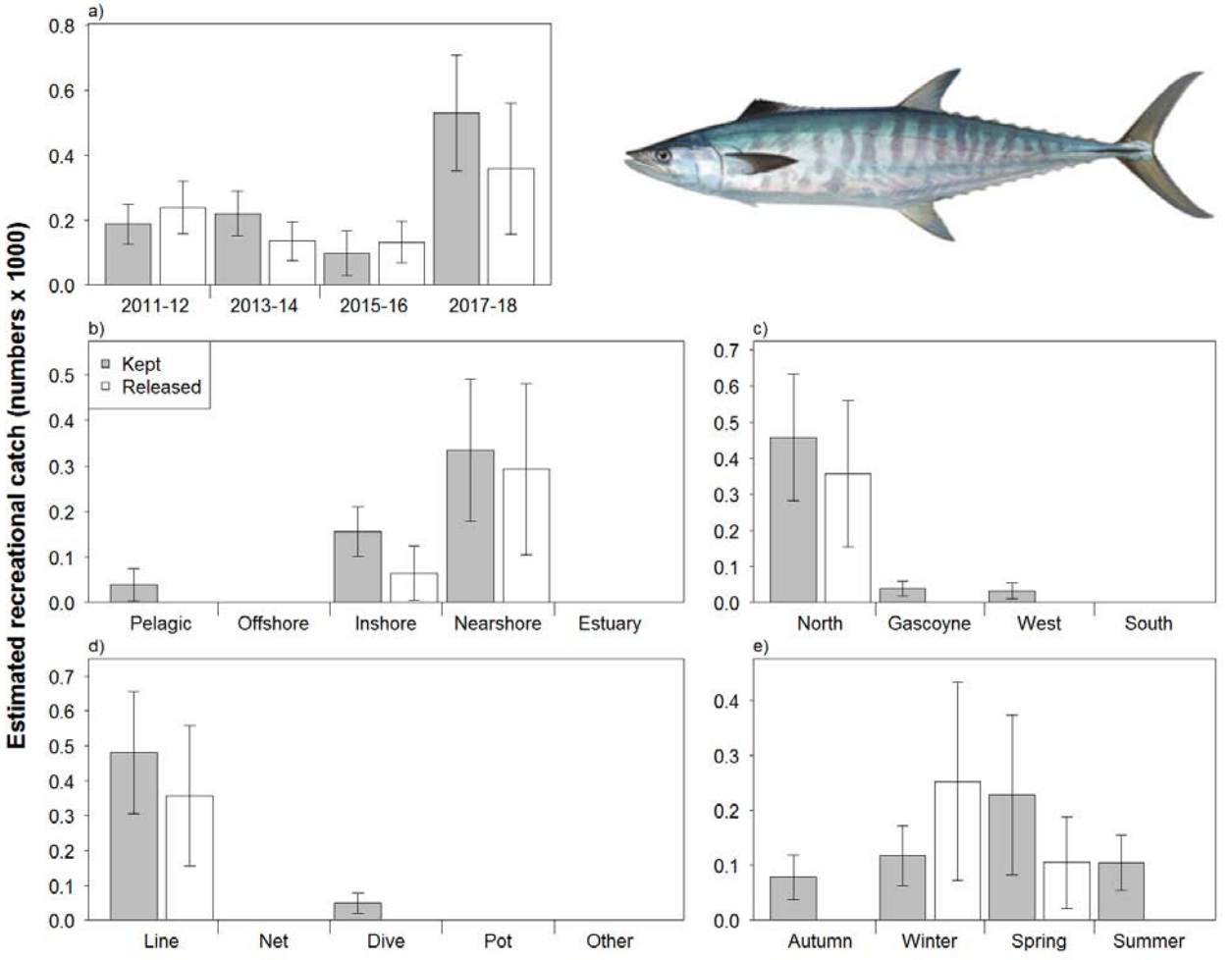


**Figure 84.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Grey Mackerel in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.6 School Mackerel (*Scomberomorus queenslandicus*)

Most boat-based recreational catches of School Mackerel occurred in the Gascoyne Coast, with some catches in the North Coast and West Coast (Figure 85c). The majority of catches were retained (43% released; Table 4, Figure 85a) with most releases attributed to “Under Size” and "Too Many" (Table 6). Catches were taken predominantly from nearshore, inshore demersal and pelagic (Figure 85b). Most catches were taken by line fishing (Figure 85d). School Mackerel were harvested throughout the year, with higher catches in winter compared with autumn, spring and summer (Figure 85e). The estimated kept and released recreational catches of School Mackerel in 2017/18 were lower than previous statewide surveys (Figure 85a).

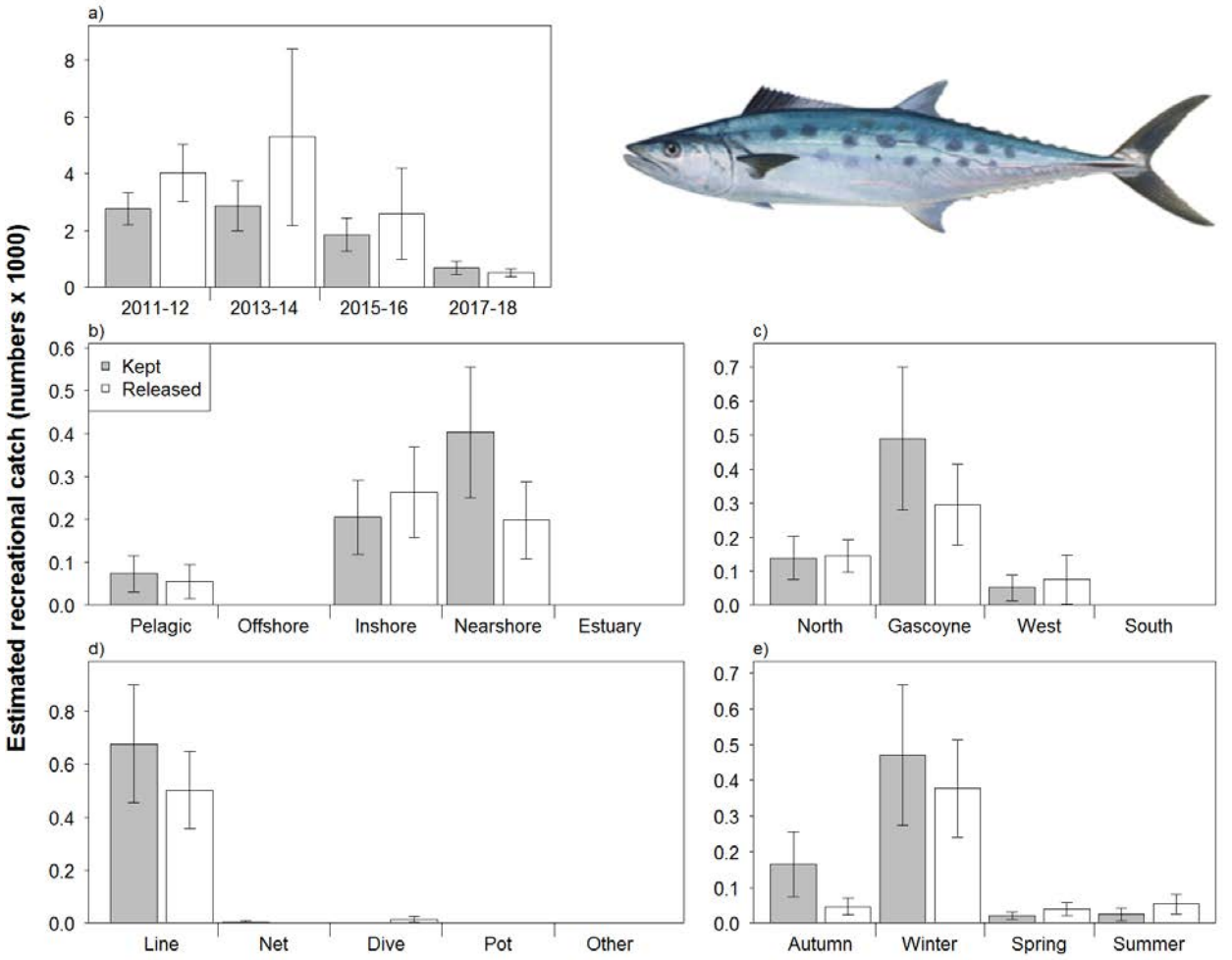


**Figure 85.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of School Mackerel in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.7 Shark Mackerel (*Grammatorcynus bicarinatus*)

Most boat-based recreational catches of Shark Mackerel occurred in the Gascoyne Coast, with some catches in the North Coast and West Coast (Figure 86c). The majority of catches were released (57%; Table 4, Figure 86a) with most releases attributed to "Too Small, "Under Size" and "Catch and Release" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 86b). Most catches were taken by line fishing (Figure 86d). Shark Mackerel were harvested throughout the year, with higher catches in winter and spring compared with summer and autumn (Figure 86e). The estimated kept and released recreational catches of Shark Mackerel in 2017/18 were similar with 2015/16 and 2031/14 but lower than 2011/12 (Figure 86a).

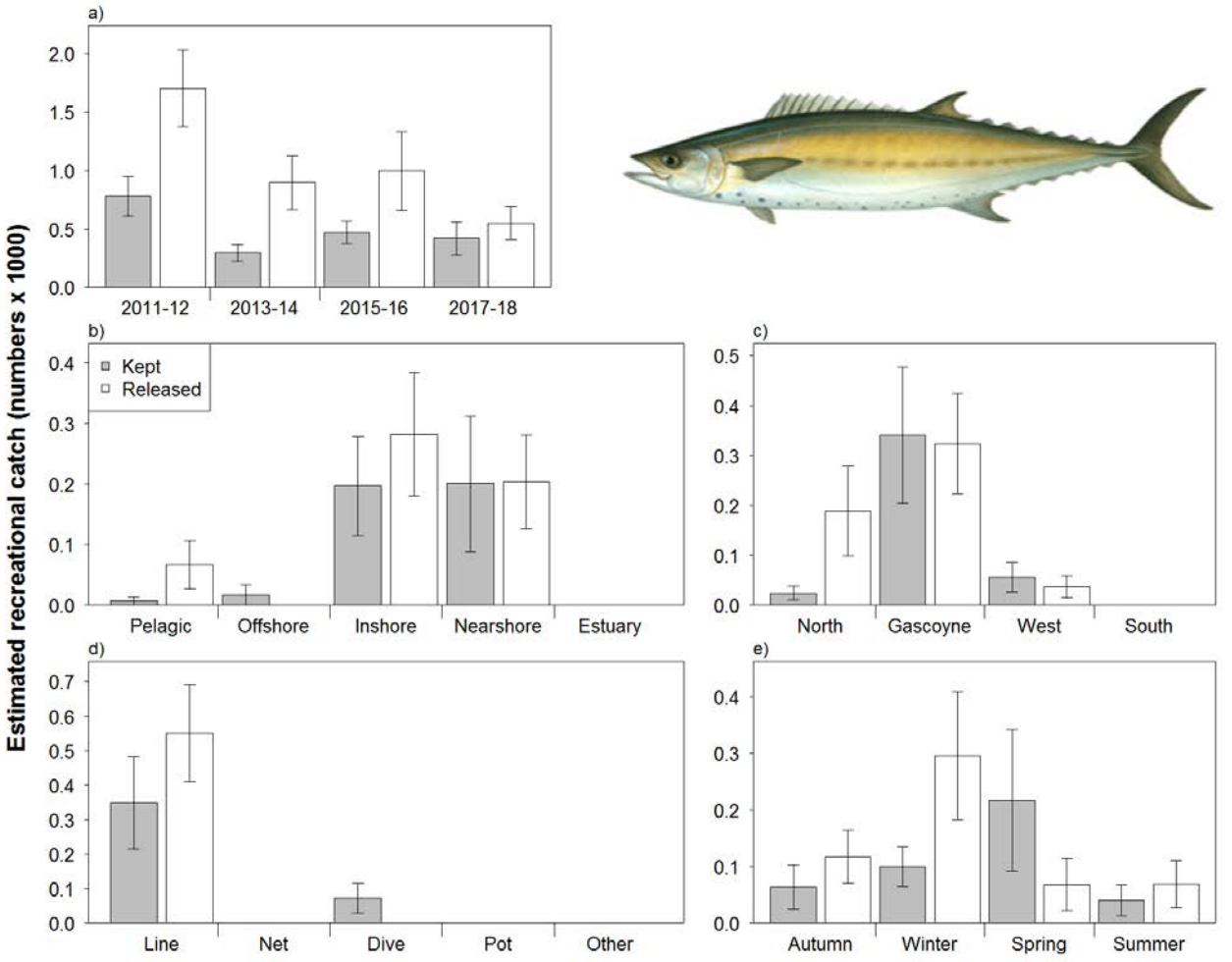


**Figure 86.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Shark Mackerel in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.8 Spanish Mackerel (*Scomberomorus commerson*)

Spanish Mackerel is an indicator species in the North Coast and Gascoyne Coast bioregions. Most boat-based recreational catches of Spanish Mackerel occurred in the Gascoyne Coast and North Coast, with some catches in the West Coast (Figure 87c). The majority of catches were retained (45% released; Table 4, Figure 87a) with most releases attributed to "Under Size" and "Other" (Table 6). Catches were taken from inshore demersal, nearshore and pelagic (Figure 87b). Catches were mostly taken by line fishing (Figure 87d). Spanish Mackerel were harvested throughout the year, with higher catches in autumn and winter compared with spring and summer (Figure 87e). The estimated kept and released recreational catches of Spanish Mackerel in 2017/18 were similar to 2015/16, but lower than 2013/14 and 2011/12 (Figure 87a).

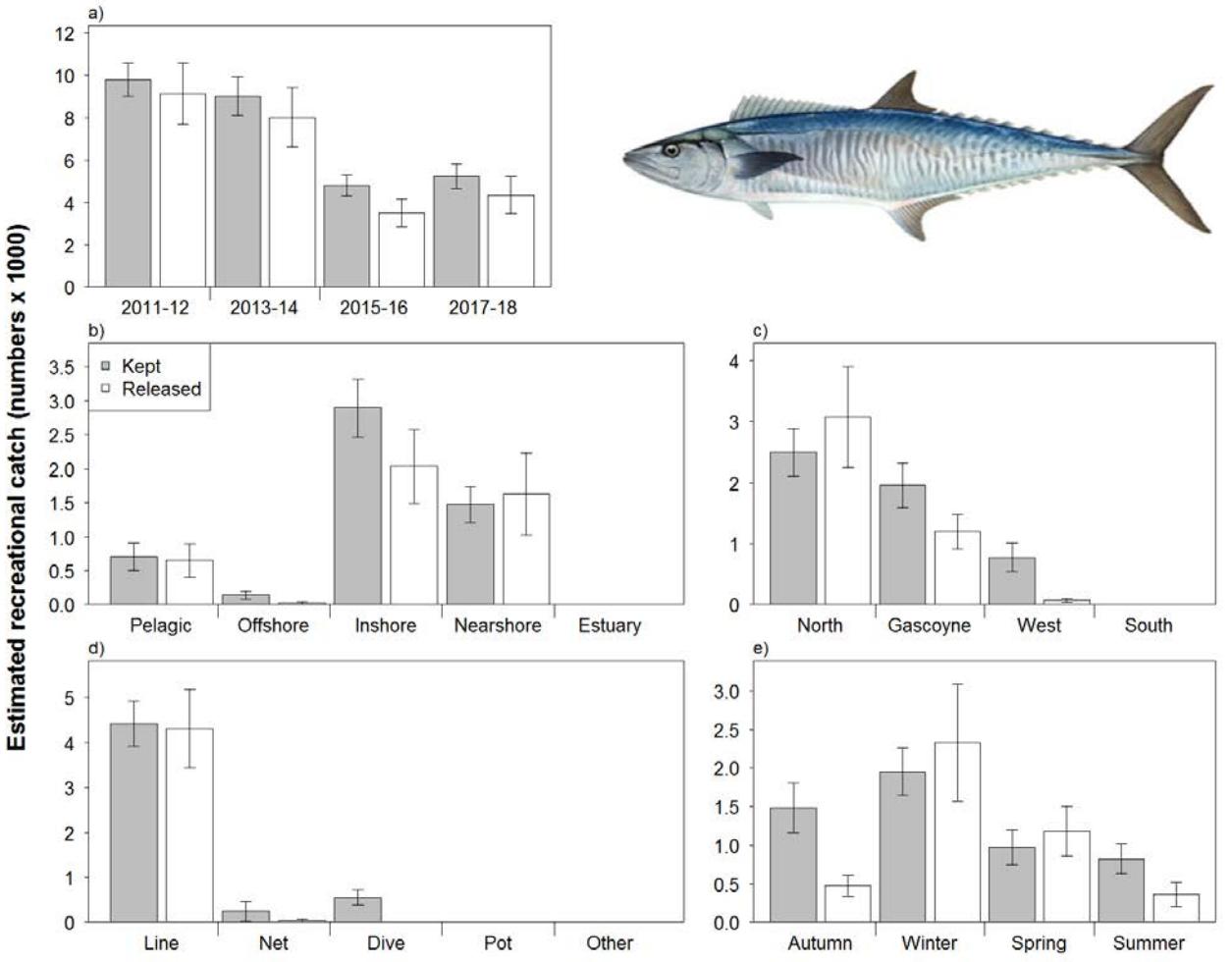


**Figure 87.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Spanish Mackerel in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.9 Mackerel Tuna (*Euthynnus affinis*)

Most boat-based recreational catches of Mackerel Tuna occurred in the North Coast, with some catches in the Gascoyne Coast and West Coast (Figure 88c). The majority of catches were released (64%; Table 4, Figure 88a) with most releases attributed to “Other”, “Catch and Release” and “Too Many" (Table 6). Catches were taken predominantly from inshore demersal and pelagic (Figure 88b). Most catches were taken by line fishing (Figure 88d). Mackerel Tuna were harvested throughout the year, with lower catches in summer (Figure 88e). The estimated kept and released recreational catches of Mackerel Tuna in 2017/18 were similar with previous statewide surveys (Figure 88a).

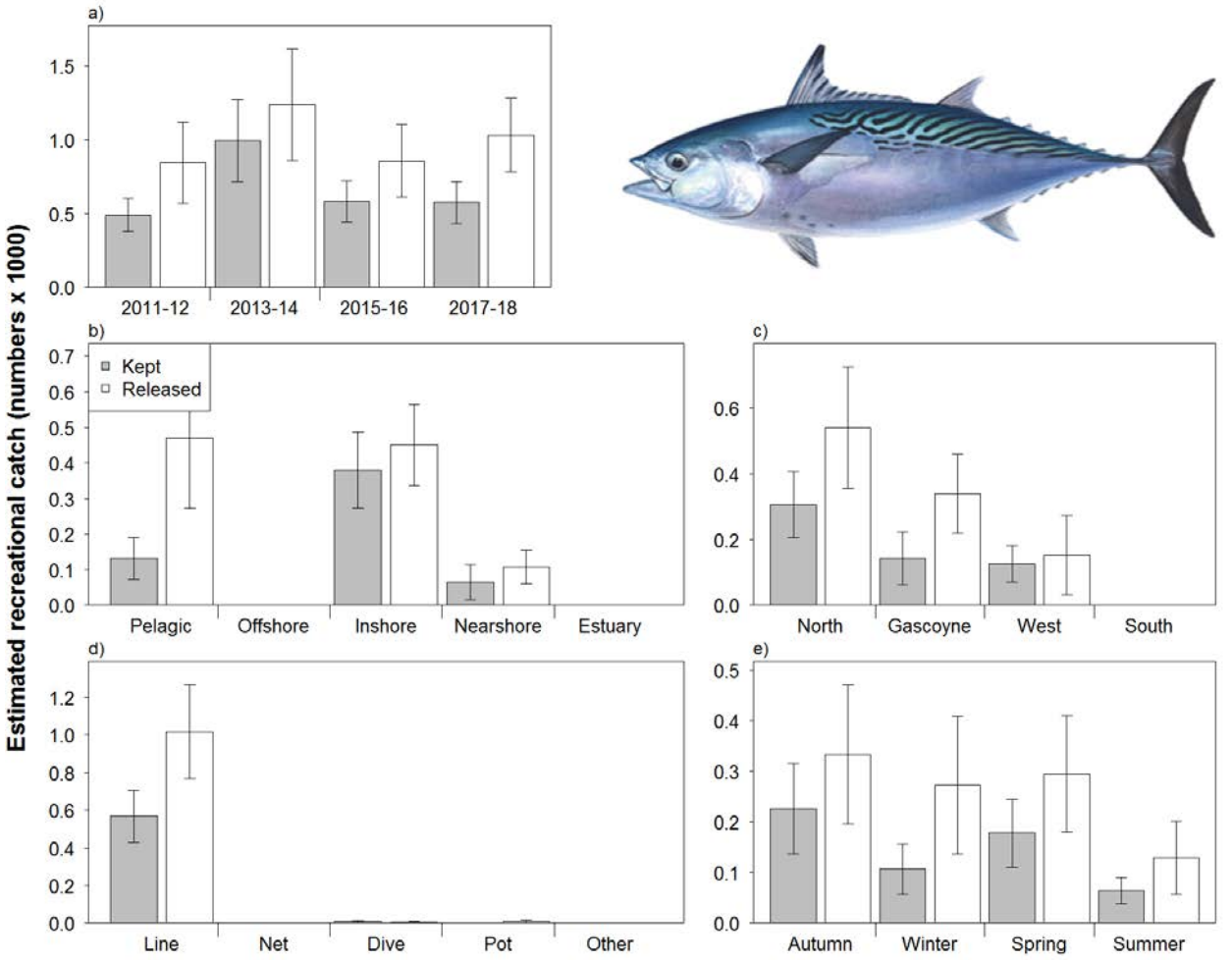


**Figure 88.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Mackerel Tuna in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.10 Southern Bluefin Tuna (*Thunnus maccoyii*)

Most boat-based recreational catches of Southern Bluefin Tuna occurred in the West Coast, with some catches in the South Coast, North Coast and Gascoyne Coast (Figure 89c). The majority of catches were retained (32% released; Table 4, Figure 89a) with most releases attributed to "Other" and "Catch and Release" (Table 6). Catches were taken predominantly from inshore demersal and pelagic (Figure 89b). Most catches were taken by line fishing (Figure 89d). Southern Bluefin Tuna were harvested throughout the year, with higher catches in summer compared with autumn, winter and spring (Figure 89e). The estimated kept recreational catch of Southern Bluefin Tuna in 2017/18 was similar to 2015/16, and higher than 2013/14 and 2011/12 (Figure 89a).

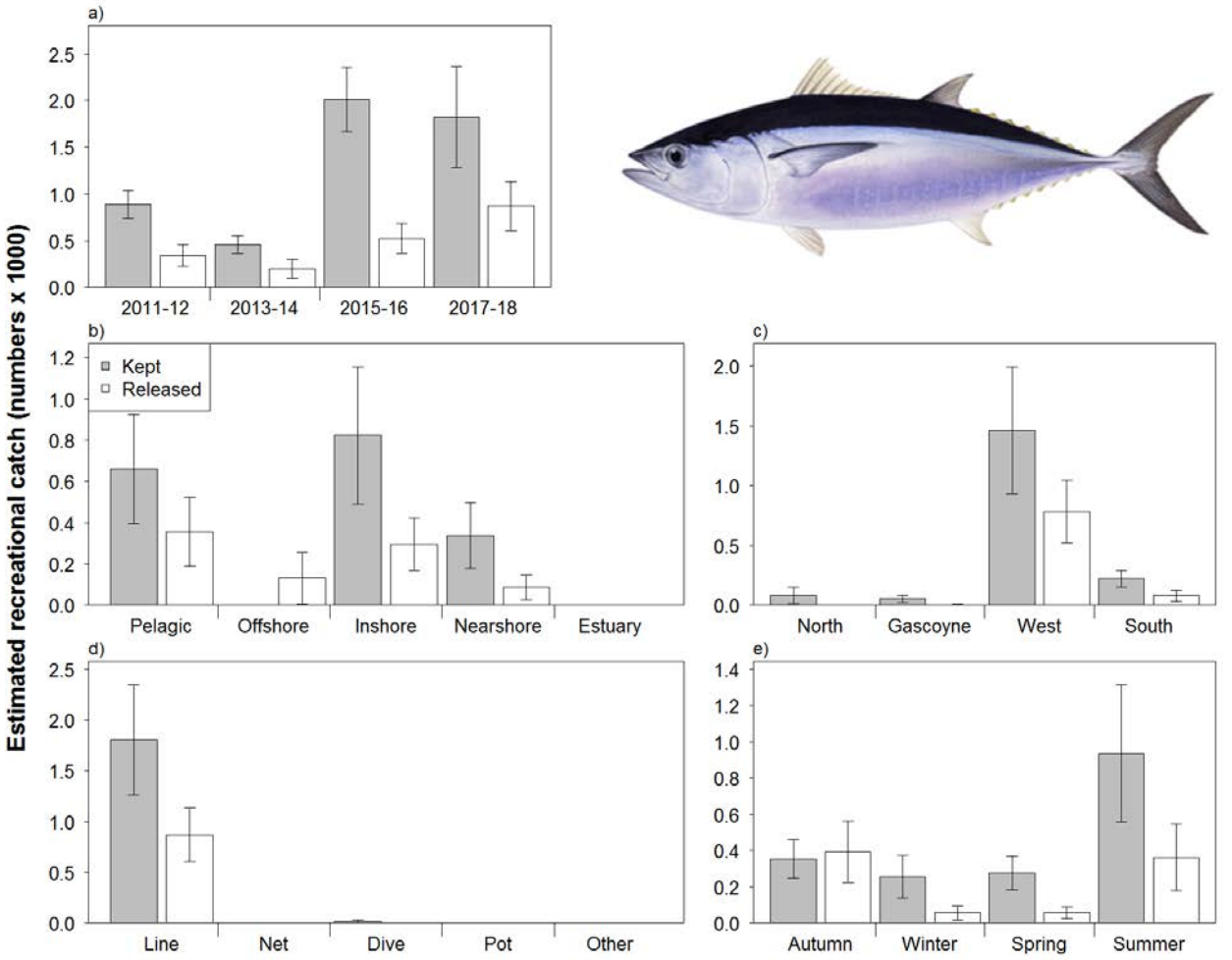


**Figure 89.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Southern Bluefin Tuna in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.5.11 Yellowfin Tuna (*Thunnus albacares*)

Most boat-based recreational catches of Yellowfin Tuna occurred in the Gascoyne Coast and West Coast, with some catches in the North Coast (Figure 90c). Similar proportions of the boat-based recreational catch were kept and released (46% released; Table 4, Figure 90a) with most releases attributed to "Catch and Release" (Table 6). Catches were taken predominantly from inshore demersal and pelagic (Figure 90b). Most catches were taken by line fishing Figure 90d). Yellowfin Tuna were harvested throughout the year, with higher catches in autumn compared with winter, spring and summer (Figure 90e). The estimated kept and released recreational catches of Yellowfin Tuna in 2017/18 were similar to 2015/16 and 2013/14, but lower than 2011/12 (Figure 90a).

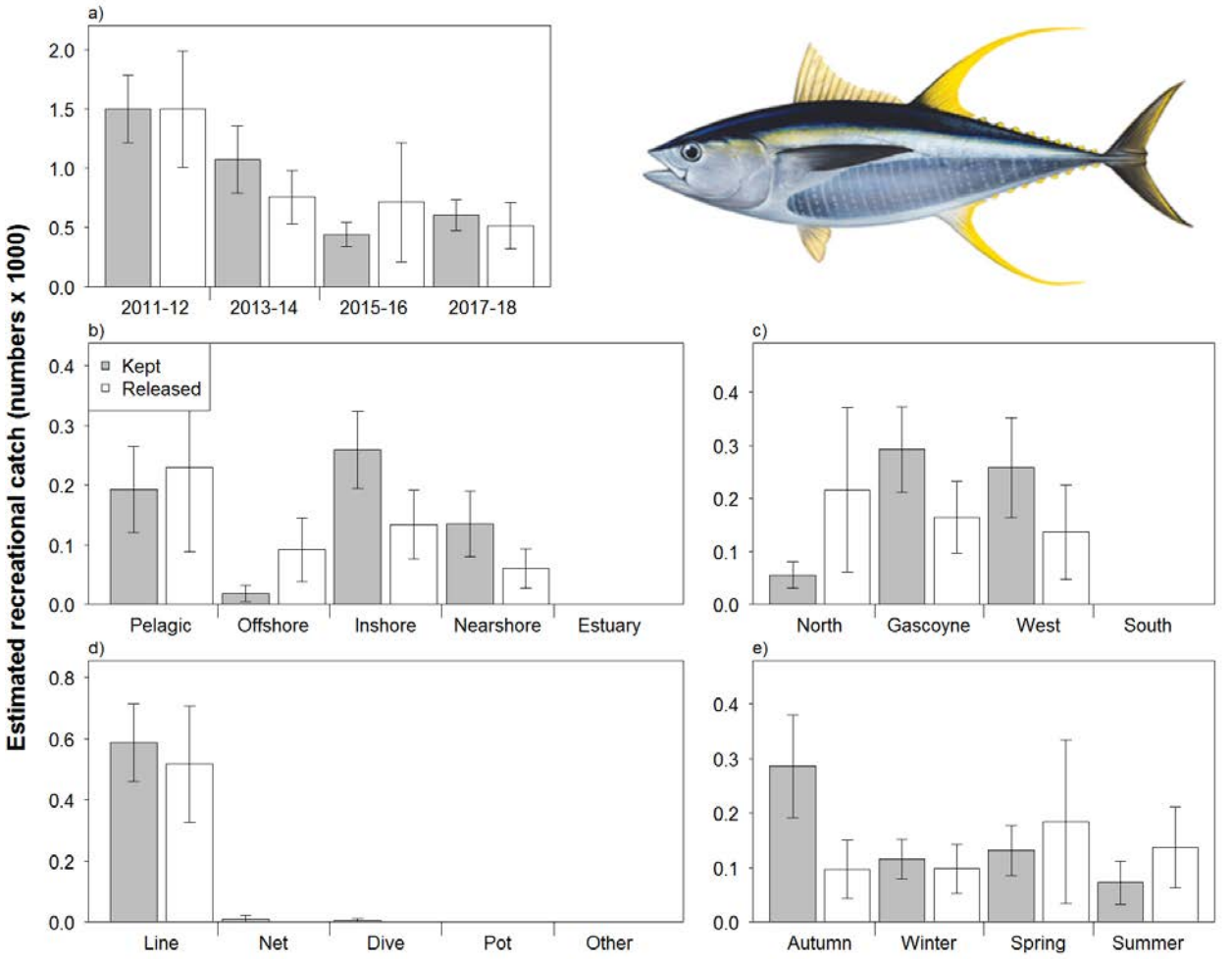


**Figure 90.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Yellowfin Tuna in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

## 6.6 Sharks

### 6.6.1 Gummy Sharks (*Mustelus antarcticus* and *M. stevensi*)

Gummy Sharks includes Gummy Shark (*Mustelus antarcticus*), which occurs nearshore to about 80m from the South Coast to Geraldton, and Western Spotted Gummy Shark (*M. stevensi*), which occurs at depths of 120–400m from Shark Bay to the Kimberley (Last and Stevens 2009). Most boat-based recreational catches of Gummy Sharks occurred in the West Coast, with some catches in the South Coast (Figure 91c). Similar proportions of the boat-based recreational catch were kept and released (46% released; Table 4, Figure 91a) and attributed to "Too Many" and "Catch and Release" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 91b). All catches were taken by line fishing (Figure 91d). Gummy Sharks were harvested throughout the year, with higher catches in autumn and winter (Figure 91e). The estimated kept recreational catch of Gummy Sharks in 2017/18 was similar to 2015/16 and 2013/14, but lower than 2011/12 (Figure 91a).

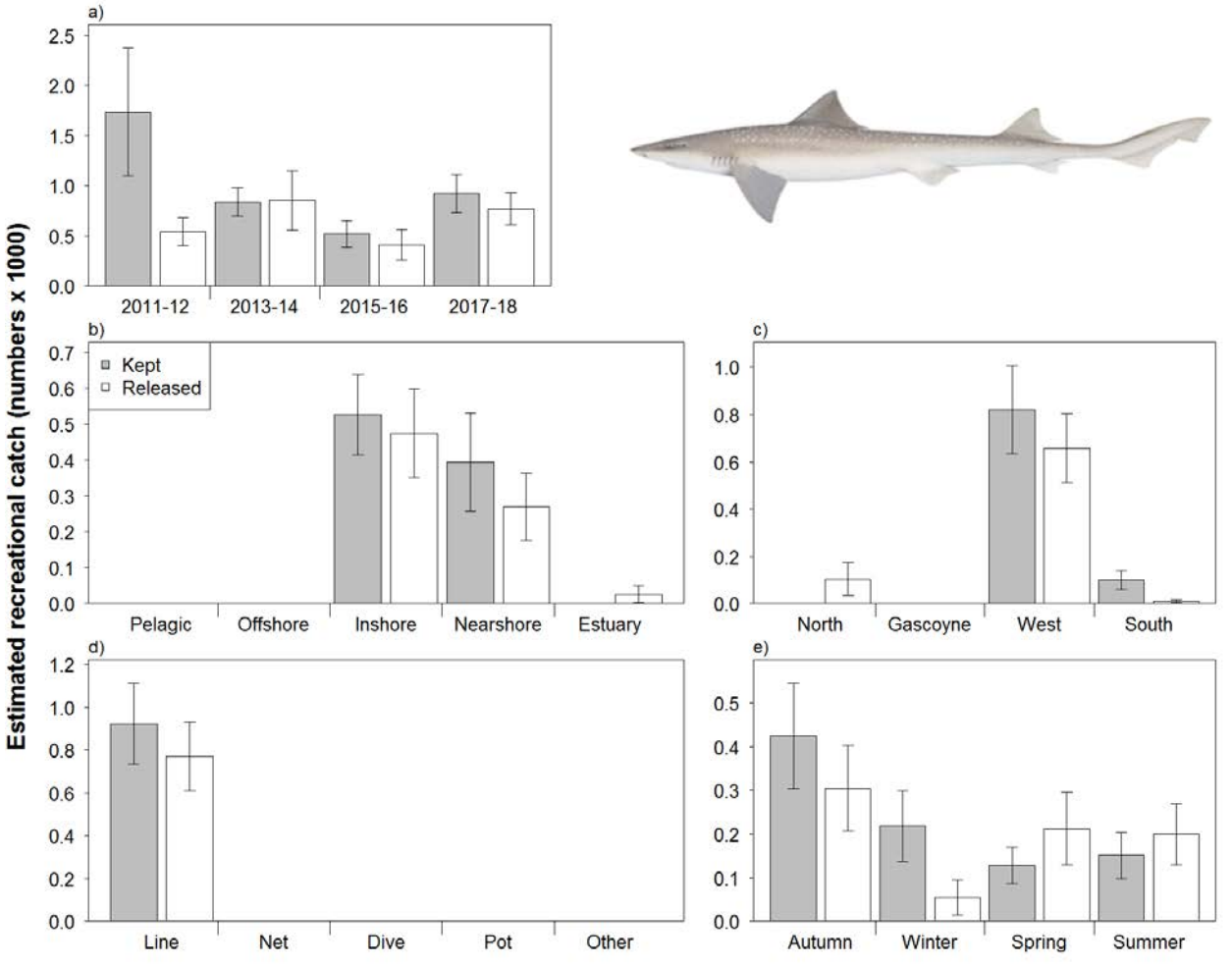


**Figure 91.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Gummy Sharks in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.6.2 Port Jackson Shark (*Heterodontus portusjacksoni*)

Most boat-based recreational catches of Port Jackson Shark occurred in the West Coast and South Coast (Figure 92c). All estimated catches were released (100%; Table 4, Figure 92a) and attributed to "Too Many" and "Other" (Table 6). Catches were taken from inshore demersal and nearshore (Figure 92b). Catches were mostly taken by line fishing (Figure 92d). Port Jackson Shark were harvested throughout the year, with higher catches in spring and summer compared with autumn and winter (Figure 92e). The estimated kept recreational catch of Port Jackson Shark in 2017/18 was similar to 2015/16; although the catch estimates for this species have high uncertainty (Figure 92a).

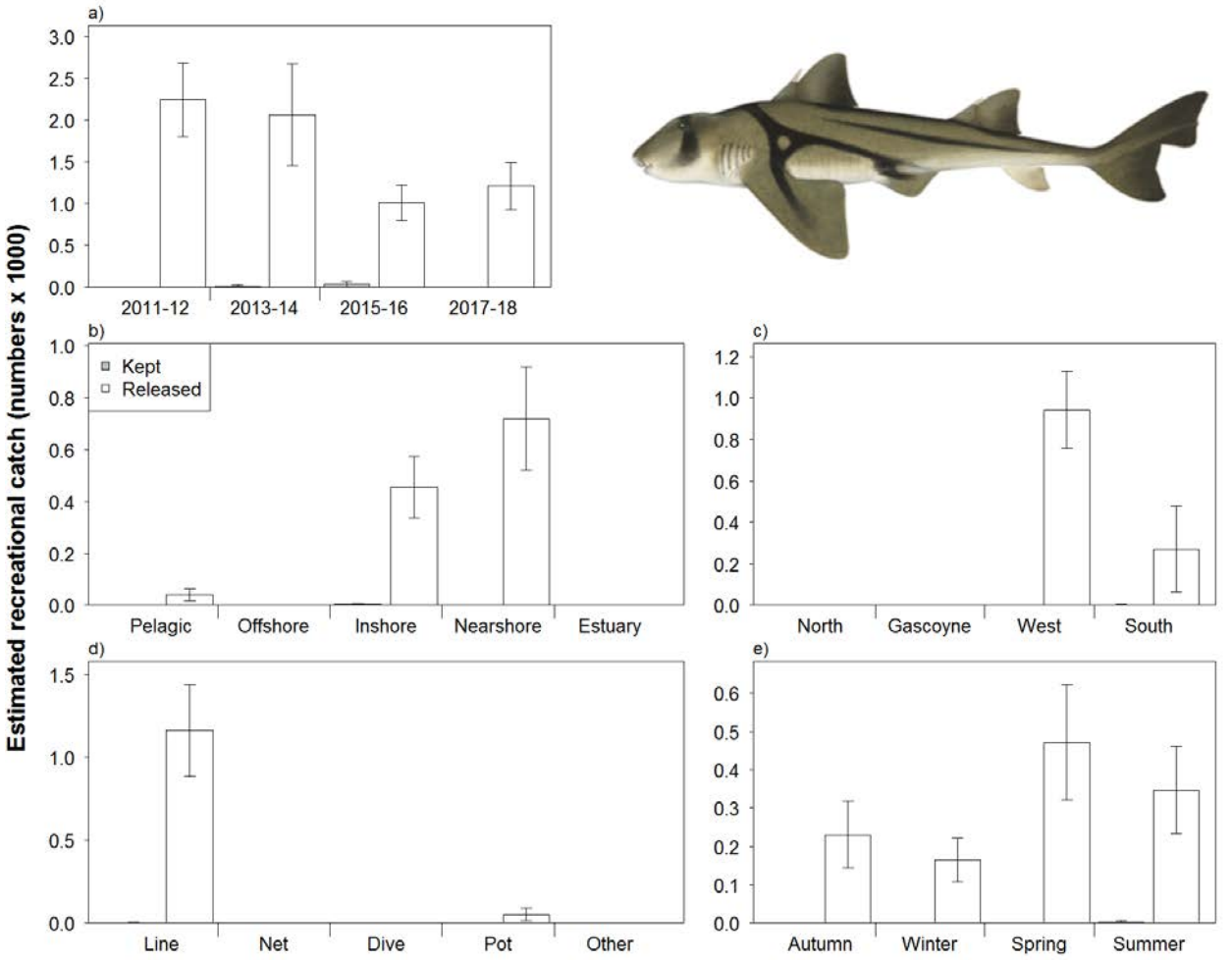


**Figure 92.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Port Jackson Shark in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.6.3 Whaler Sharks (Family Carcharhinidae)

Whaler Sharks are a statewide indicator species. Whaler Sharks (Family Carcharhinidae) include Blacktip Reef Shark (*Carcharhinus melanopterus*), Bronze Whaler (*Carcharhinus brachyurus*), Dusky Whaler (*Carcharhinus obscurus*), Lemon Shark (*Negaprion acutidens*), Sandbar Shark (*Carcharhinus plumbeus*), Tiger Shark (*Galeocerdo cuvier*), Whitetip Reef Shark (*Triaenodon obesus*) and Other Whaler Sharks (Carcharhinidae - undifferentiated). Most boat-based recreational catches occurred in the North Coast, Gascoyne Coast and West Coast (Figure 93c). The majority of catches were released (71% or higher; Table 4, Figure 93a) and attributed to "Too Many" and "Other" (Table 6). Catches were mostly taken from inshore demersal (Figure 93d) by line fishing (Figure 93d). Catches occurred throughout the year, with higher catches in autumn (Figure 93e). The estimated kept recreational catch of Whaler Sharks in 2017/18 was similar with previous statewide surveys (Figure 93a).

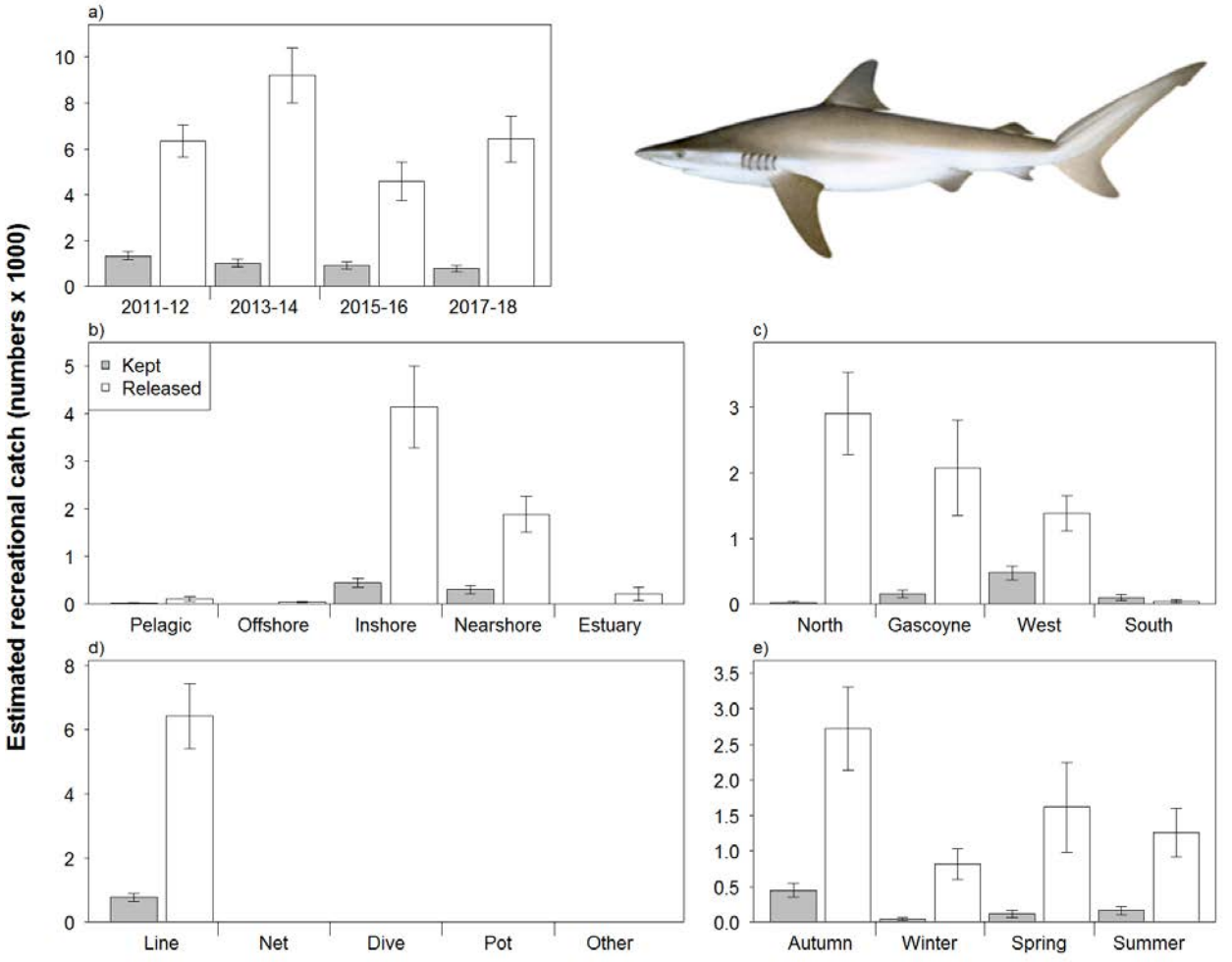


**Figure 93.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Whaler Sharks in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.6.4 Wobbegong (Family Orectolobidae)

Most boat-based recreational catches of Wobbegong occurred in the West Coast, with some catches in the South Coast (Figure 94c). The majority of catches were released (68%; Table 4, Figure 94a) and attributed to "Too Many" and "Other" (Table 6). Catches were taken predominantly from inshore demersal and nearshore (Figure 94b). Catches were mostly taken by line fishing, with some catches from potting (Figure 94d). Wobbegong were harvested throughout the year, with higher catches summer and autumn compared with winter and spring (Figure 94e). The estimated kept recreational catch of Wobbegong in 2017/18 was similar with previous statewide surveys (Figure 94a).

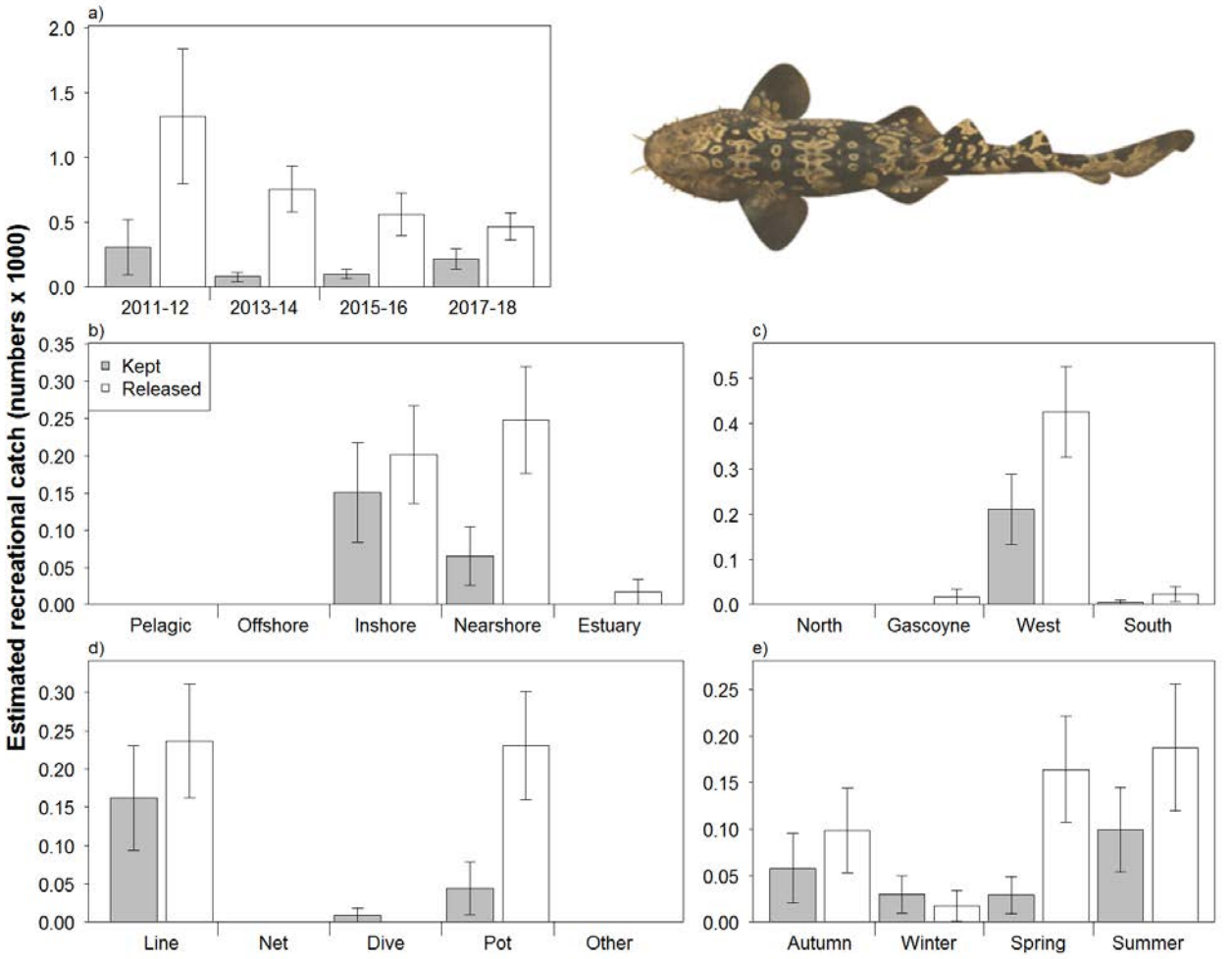


**Figure 94.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Wobbegong in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

## 6.7 Crustaceans

### 6.7.1 Western Rock Lobster (*Panulirus cygnus*)

The estimated catch from this survey does not account for catches from fishers that only have a Rock Lobster licence. Approximately 40% of Rock Lobster licence holders do not have a RBFL; therefore, these results underestimate the catch of Western Rock Lobster. Most boat-based recreational catches occurred in the West Coast (Figure 95c). The majority of catches were retained (35% released; Table 4, Figure 95a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from nearshore (Figure 95b). Catches were mostly taken by potting, followed by diving (Figure 95d). Rock Lobster were harvested mostly in summer, followed by spring and autumn (Figure 95e). The estimated kept and released recreational catches in 2017/18 were higher than previous statewide surveys (Figure 95a).

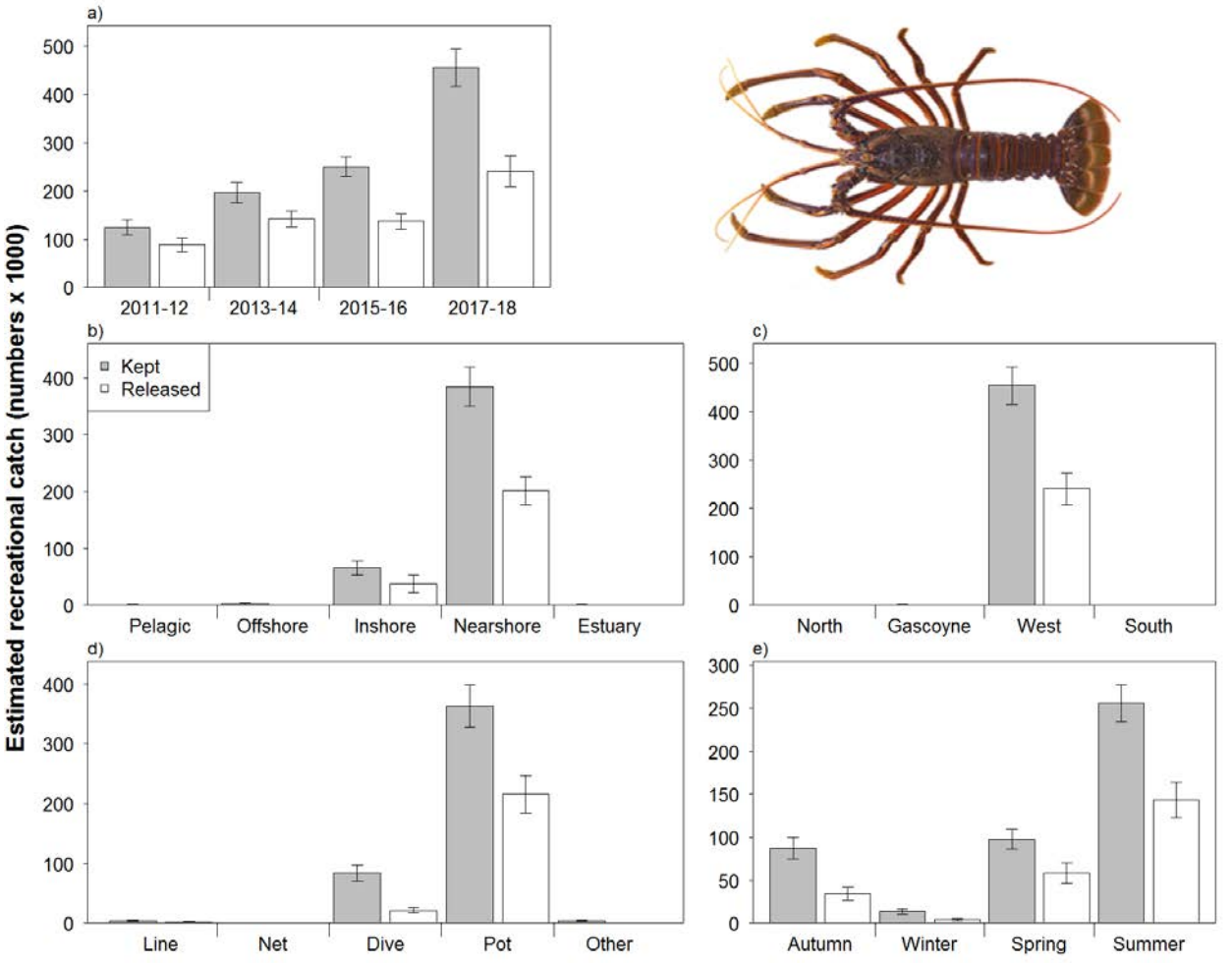


**Figure 95.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Western Rock Lobster in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.7.2 Blue Swimmer Crab (*Portunus armatus*)

Blue Swimmer Crab, previously known as *Portunus pelagicus*, but now classified as *Portunus armatus*, is harvested statewide. Most boat-based recreational catches of Blue Swimmer Crab occurred in the West Coast, with some catches in the North Coast and Gascoyne Coast (Figure 96c). The majority of catches were released (58%; Table 4, Figure 96a) and attributed to "Under Size" (Table 6). Catches were taken predominantly from estuary and nearshore (Figure 96b). Most catches were taken by pots (including drop nets) (Figure 96d). Blue Swimmer Crab were harvested throughout the year, with higher catches in summer compared with autumn and spring (Figure 96e). The estimated kept recreational catch of Blue Swimmer Crab in 2017/18 was higher than 2015/16, although the estimated released recreational catch was lower (Figure 96a).

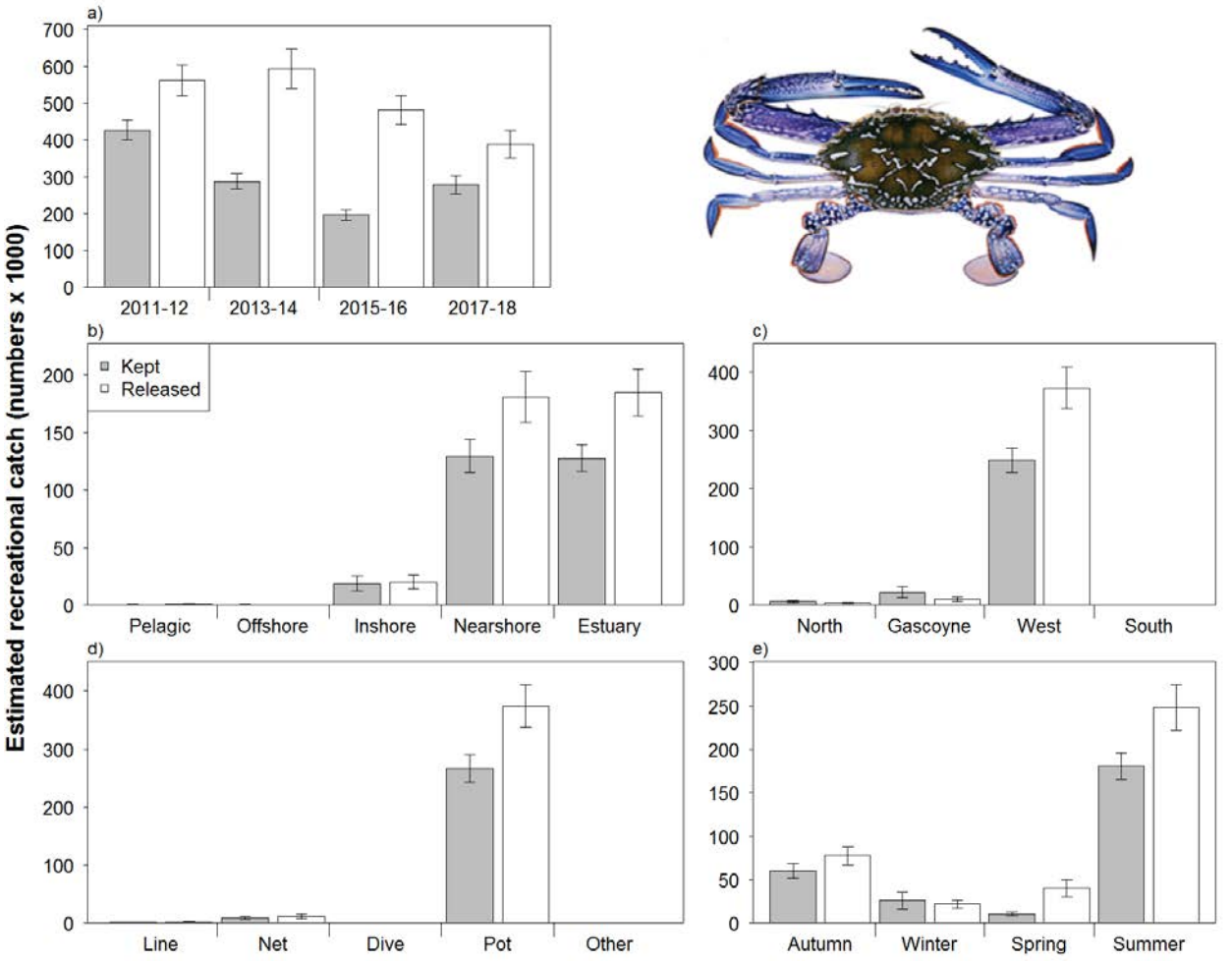


**Figure 96.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Blue Swimmer Crab in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.7.3 Mud Crab (*Scylla olivacea* and *S. serrata*).

Mud Crabs include Brown Mud Crab (*Scylla olivacea*) and Green Mud Crab (*S. serrata*). Most boat-based recreational catches of Mud Crab occurred in the North Coast (85%), with some catches in the West Coast (12%) and Gascoyne Coast (4%; Figure 97c). These proportions were similar to 2013/14 and 2011/12. There were different release rates for the two species (42% for Brown Mud Crab and 52% for Green Mud Crab; Table 4, Figure 97a) with most releases attributed to "Under Size" (Table 6). Catches were taken predominantly from nearshore and estuary (Figure 97b). Most catches were taken by pots (Figure 97d). Mud Crab were harvested throughout the year, with higher catches in autumn and winter compared with summer and spring (Figure 97e). The estimated kept and released recreational catches of Mud Crab in 2017/18 were similar to 2015/16, but lower than 2013/14 and 2011/12 (Figure 97a).

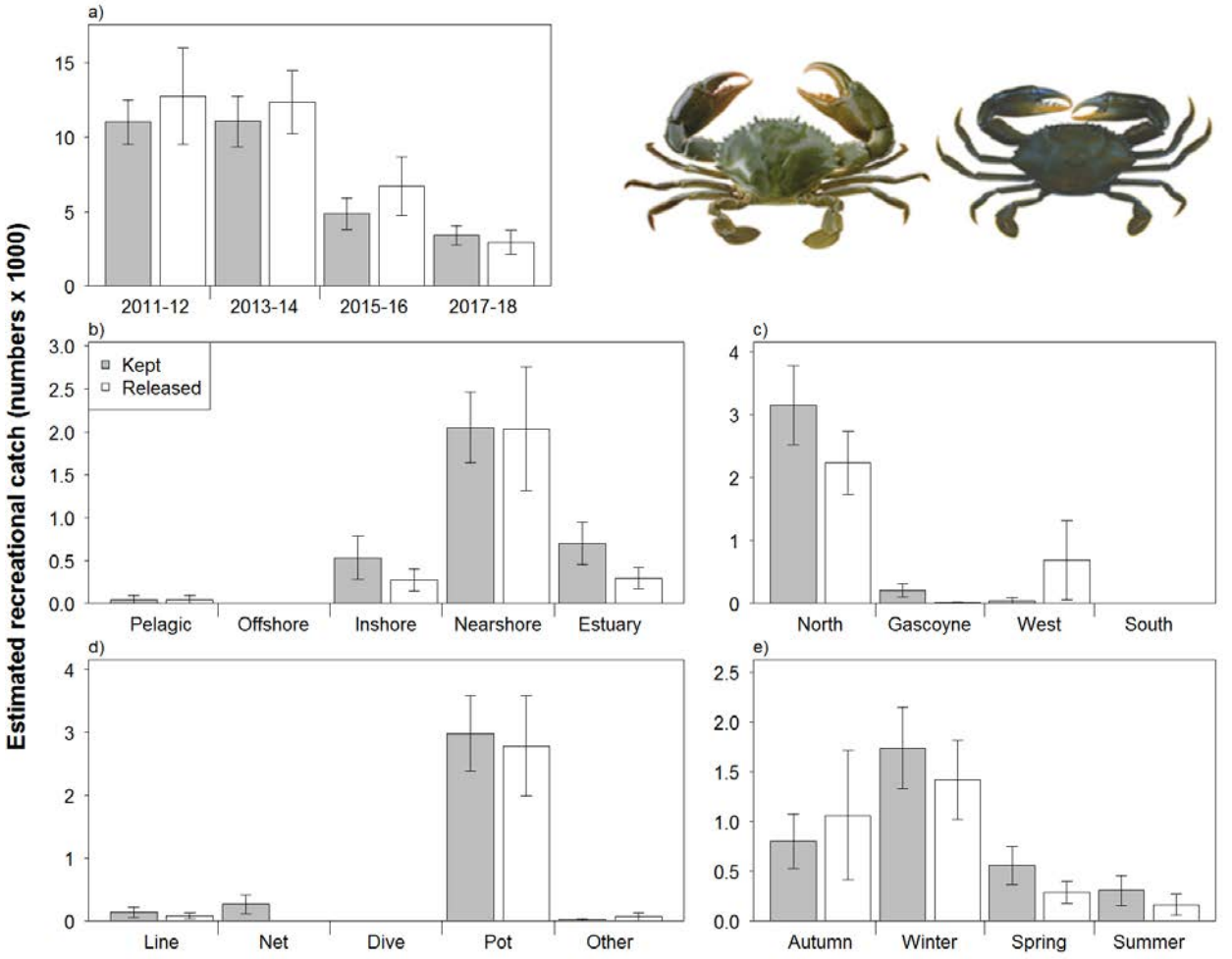


**Figure 97.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Mud Crab in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

## 6.8 Molluscs

### 6.8.1 Abalone (*Haliotis* spp.)

Abalone includes Roe's Abalone (*Haliotis roei*), Greenlip Abalone (*H. laevigata*) and Brownlip Abalone (*H. conicopora*). Most boat-based recreational catches of Abalone occurred in the West Coast, with some catches in the South Coast (Figure 98c). The majority of catches were retained (3% released; Table 4, Figure 98a). Most catches were taken from nearshore (Figure 98b). Catches were mostly taken by diving (Figure 98d). Abalone were mostly harvested in summer compared with spring and autumn (Figure 98e). The estimated kept recreational catches of Abalone in 2017/18 was higher than 2015/16 and 2013/14, but similar with 2011/12, however, the catch estimates for this species have high uncertainty (Figure 98a). These estimates do not include catches from shore-based recreational fishing.

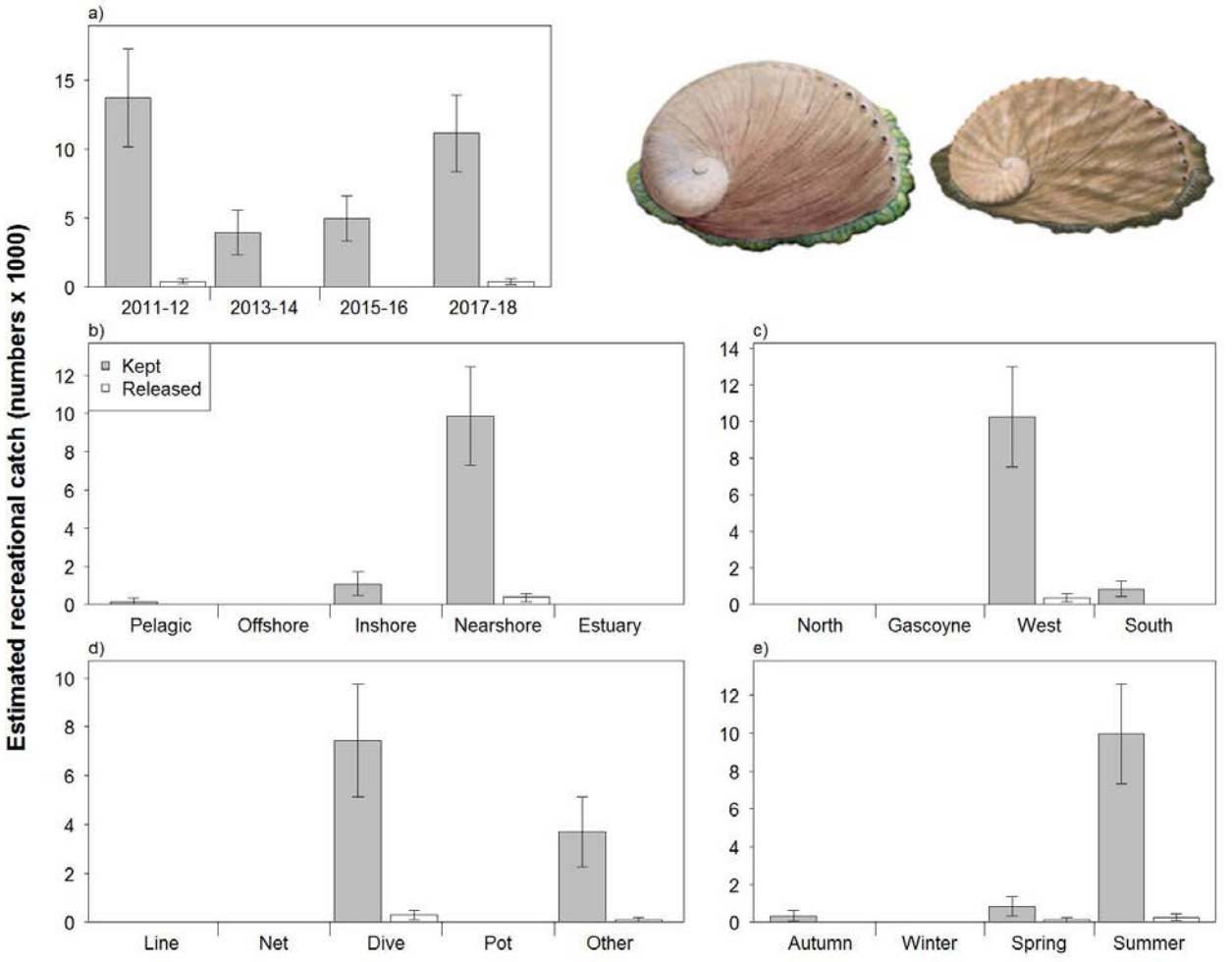


**Figure 98.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Abalone in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

## 6.9 Cephalopods

### 6.9.1 Cuttlefish (Order Sepiidae)

Most boat-based recreational catches of Cuttlefish occurred in the West Coast, with some catches in the South Coast (Figure 99c). The majority of catches were retained (28% released; Table 4, Figure 99a) with most releases attributed to "Too Many" and "Other" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 99b). Catches were mostly taken by line fishing (Figure 99d). Cuttlefish were harvested throughout the year, with higher catches in autumn, winter and spring compared with and summer (Figure 99e). The estimated kept recreational catch of Cuttlefish in 2017/18 was higher than 2015/16 and 2013/14, but similar with 2011/12 (Figure 99a).

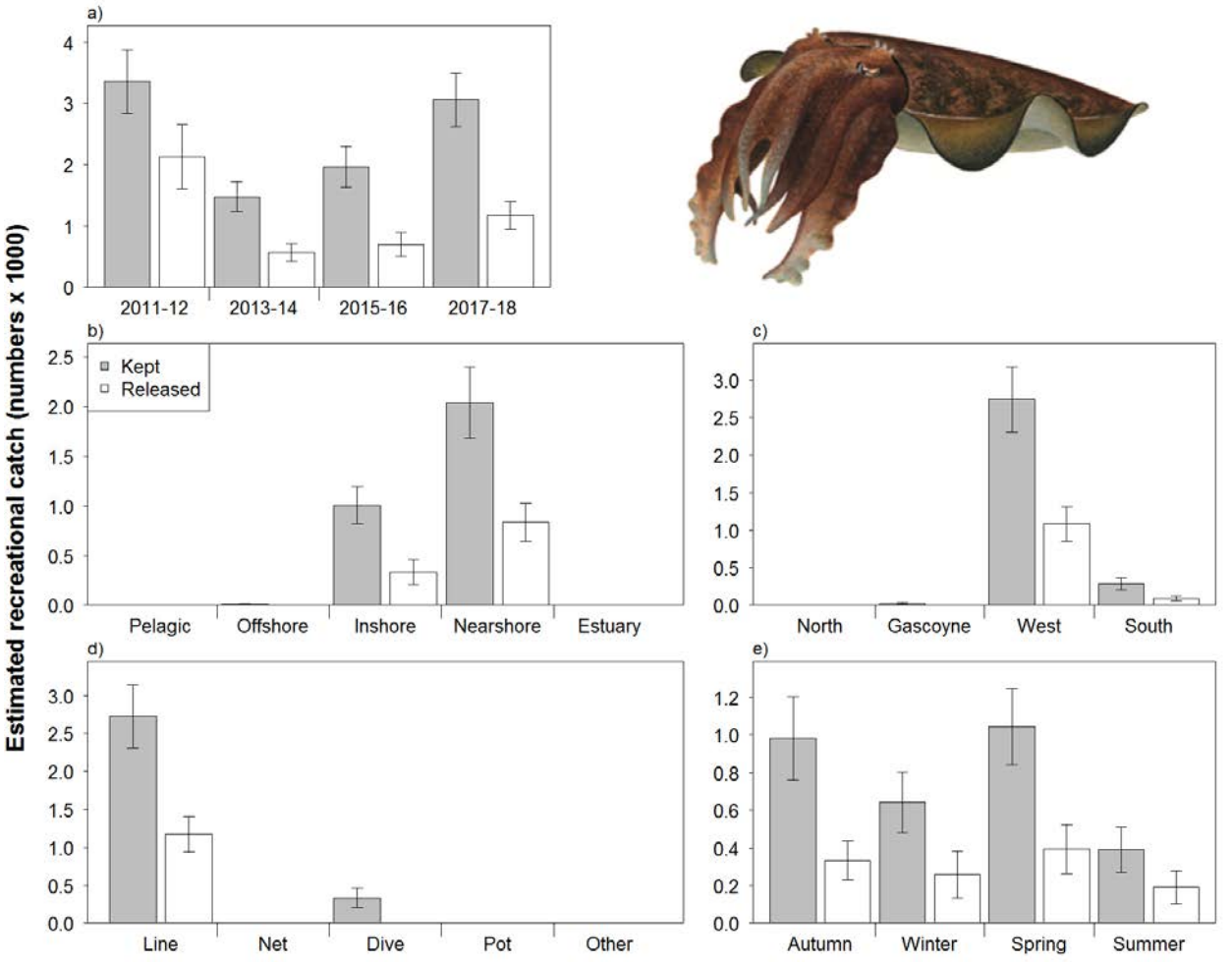


**Figure 99.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Cuttlefish in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.9.2 Squid (Order Teuthoidea)

Most boat-based recreational catches of Squid occurred in the West Coast, with some catches in the Gascoyne Coast, South Coast and North Coast (Figure 100c). The majority of catches were retained (3% released; Table 4, Figure 100a) with most releases attributed to "Under Size" and "Too Small" (Table 6). Catches were taken predominantly from nearshore and inshore demersal (Figure 100b). Catches were mostly taken by line fishing (Figure 100d). Squid were harvested throughout the year, with higher catches in autumn, followed by winter, spring and summer (Figure 100e). The estimated kept and released recreational catches of Squid in 2017/18 were simlar with previous statewide surveys (Figure 100a).

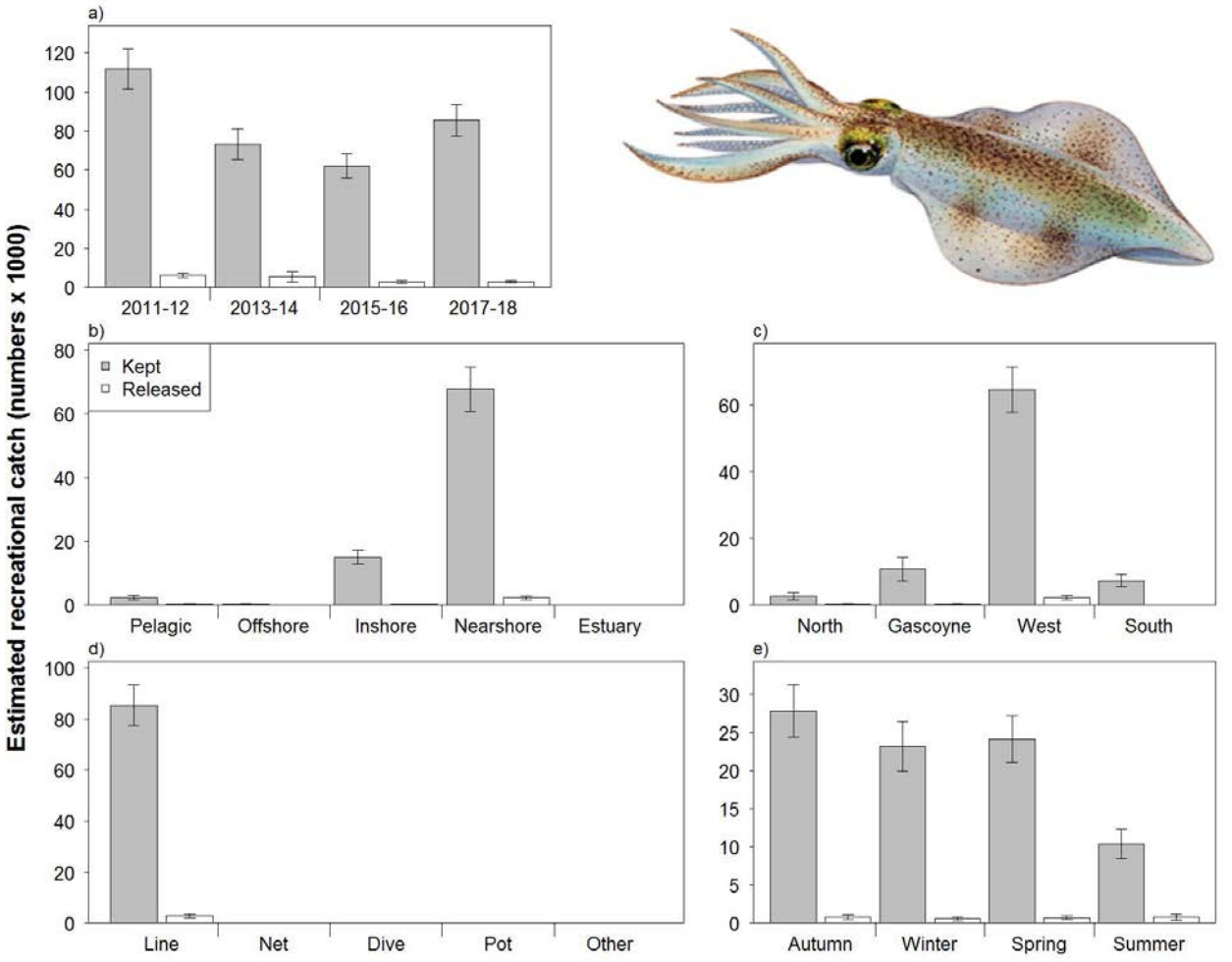


**Figure 100.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Squid in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

### 6.9.3 Octopus (Order Octopodidae)

Most boat-based recreational catches of Octopus occurred in the West Coast, with some catches in the Gascoyne Coast and North Coast (Figure 101c). The majority of catches were retained (16% released; Table 4, Figure 101a) with most releases attributed to "Too Many" and "Too Small" (Table 6). Catches were taken predominantly from nearshore (Figure 101b). Catches were mostly taken by potting, followed by other and line fishing (Figure 101d). Octopus were harvested throughout the year, with higher catches in summer compared with autumn, winter and spring (Figure 101e). The estimated kept recreational catch of Octopus in 2017/18 was similar with previous statewide surveys (Figure 101a, Table 5).

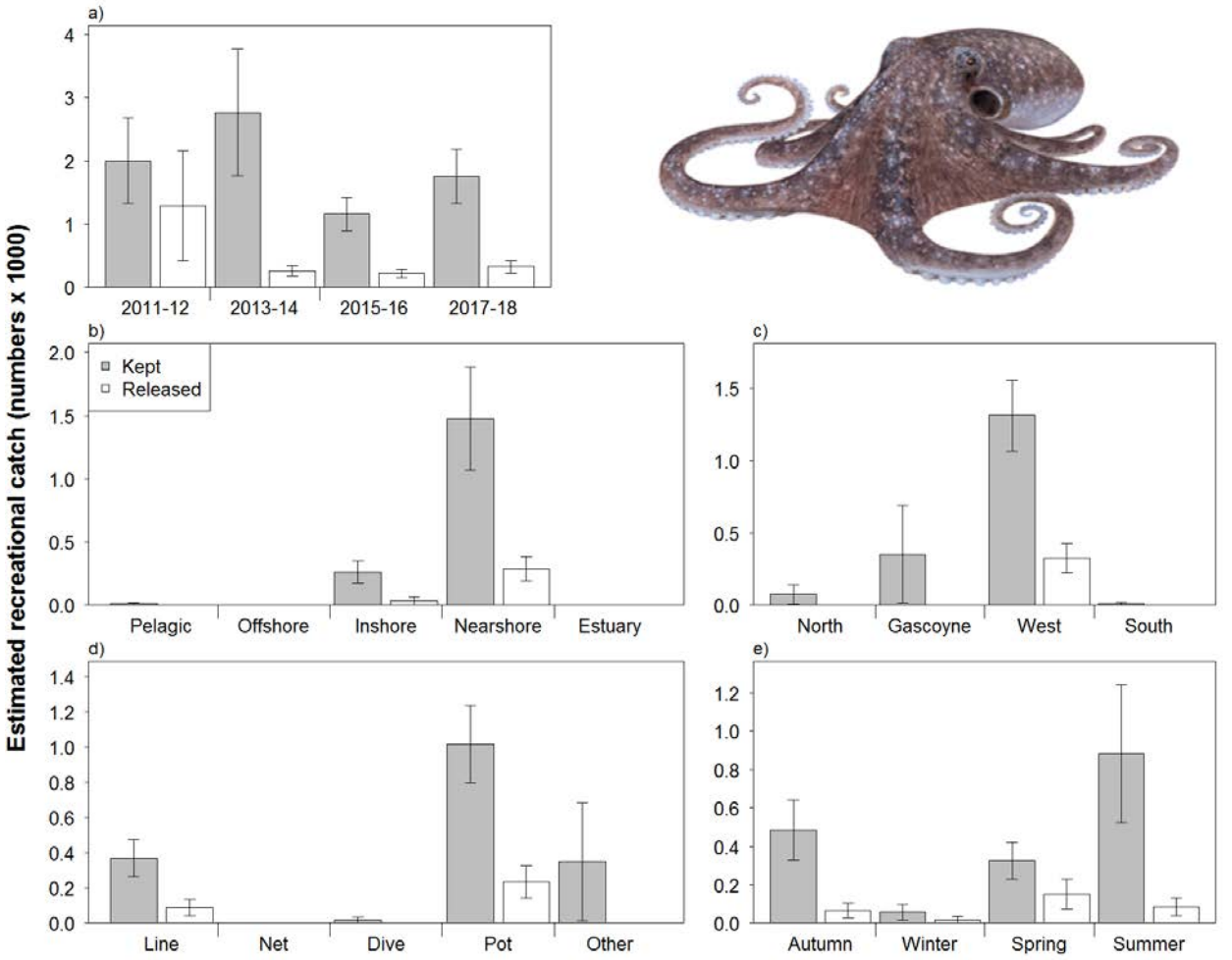


**Figure 101.** Boat-based kept (grey bars) and released (white bars) recreational catch (numbers x 1000 with standard error bars) of Octopus in Western Australia during 2017/18: a) compared with 3 previous surveys; b) catch by habitat; c) catch by bioregion; d) catch by method; and e) catch by season.

# 7 Estimates of Catch by Bioregion

This section presents estimates of boat-based recreational catch by bioregion for the 12-months from September 2017 to August 2018. Estimates are presented for annual catch (total, kept and released, by number) and proportions released (% released) for all species in each bioregion: North Coast (Table 7), Gascoyne Coast (Table 8), West Coast (Table 9) and South Coast (Table 10).

## 7.1 North Coast

A total of 134 species/taxa were reported in the North Coast in 2017/18, which represented 5.8% of the statewide total catch (by numbers). The most common finfish species were Grass Emperor (9% of the bioregion total catch), Stripey Snapper (8%), Red Emperor (6%), Coral Trout (5%), Saddletail Snapper (4%), Barramundi (4%), Spangled Emperor (3%), Rankin Cod (3%), Spanish Mackerel (3%), Blackspotted Rockcod (3%), Golden Trevally (2%), Blackspot Tuskfish (2%), Mangrove Jack (2%), Goldspotted Rockcod (2%), Crimson Snapper (2%), Golden Snapper (2%) and Blue Threadfin (2%). The most common invertebrate species were Blue Swimmer Crab (6%), Mud Crab (3%) and Squid (2%). These 20 species accounted for 73% of the total catch (by numbers) in the North Coast in 2017/18.

## 7.2 Gascoyne Coast

A total of 144 species/taxa were reported in the Gascoyne Coast in 2017/18, which represented 8.1% of the statewide total catch (by numbers). The most common finfish species were Pink Snapper (19% of the bioregion total catch), Grass Emperor (10%), Chinaman Rockcod (7%), Redthroat Emperor (6%), Spangled Emperor (5%), Red Emperor (2%), Goldband Snapper (2%) and Rankin Cod (2%). The most common invertebrate species were Blue Swimmer Crab (14%) and Squid (5%). These 10 species accounted for 72% of the total catch (by numbers) in the Gascoyne Coast in 2017/18.

## 7.3 West Coast

A total of 161 species/taxa were reported in the West Coast in 2017/18, which represented 79.6% of the statewide total catch (by numbers). The most common finfish species were School Whiting (11% of the bioregion total catch), Australian Herring (5%), West Australian Dhufish (3%), Pink Snapper (3%) and Silver Trevally (2%). The most common invertebrate species were Western Rock Lobster (31%), Blue Swimmer Crab (28%) and Squid (3%). These eight species accounted for 84% of the total catch (by numbers) in the West Coast in 2017/18.

## 7.4 South Coast

A total of 91 species/taxa were reported in the South Coast in 2017/18, which represented 6.5% of the statewide total catch (by numbers). The most common finfish species were King George Whiting (16% of the bioregion total catch), Black Bream (10%), School Whiting (10%), Australian Herring (9%), Bight Redfish (9%), Pink Snapper (6%), Breaksea Cod (5%), West Australian Dhufish (3%), Silver Trevally (2%), Swallowtail (2%), Blue Morwong (2%), Sea Sweep (2%), Southern Bluespotted Flathead (2%), Brownspotted Wrasse (2%) and Western King Wrasse (2%).

The most common invertebrate species were Squid (4%). These 16 species accounted for 84% of the total catch (by numbers) in the South Coast in 2017/18.

**Table 7.** Estimated annual catch (total, kept and released numbers) and proportion released in the North Coast bioregion during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); values in italics indicate <30 respondents recorded catches of the species).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cephalopod | Octopus | *Octopus spp* | ***77*** | ***68*** | *0* | *0* | ***77*** | ***68*** | 0% |
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | ***2,754*** | ***1,170*** | ***225*** | ***209*** | ***2,979*** | ***1,335*** | 8% |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | ***381*** | ***278*** | *0* | *0* | ***381*** | ***278*** | 0% |
| Lobster | Painted Rock Lobster | *Panulirus versicolor* | ***1,133*** | ***606*** | ***70*** | ***67*** | ***1,203*** | ***613*** | 6% |
| Lobster | Ornate Rock Lobster | *Panulirus ornatus* | ***258*** | ***107*** | *0* | *0* | ***258*** | ***107*** | 0% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | *6,522* | *1,981* | *4,031* | *1,380* | *10,553* | *3,108* | 38% |
| Crab | Green Mud Crab | *Scylla serrata* | *1,230* | *359* | *741* | *208* | *1,971* | *521* | 38% |
| Crab | Brown Mud Crab | *Scylla olivacea* | 1,924 | 447 | 1,494 | 414 | 3,418 | 736 | 44% |
| Sharks | Blacktip Reef Shark | *Carcharhinus melanopterus* | ***7*** | ***6*** | *1,308* | *427* | *1,315* | *427* | 99% |
| Sharks | Dusky Whaler | *Carcharhinus obscurus* | *0* | *0* | *671* | *203* | *671* | *203* | 100% |
| Sharks | Gummy Sharks | *Mustelus antarcticus & M stevensi* | *0* | *0* | ***104*** | ***70*** | ***104*** | ***70*** | 100% |
| Sharks | Hammerhead Shark | Family Sphyrnidae | *0* | *0* | ***15*** | ***9*** | ***15*** | ***9*** | 100% |
| Sharks | Lemon Shark | *Negaprion acutidens* | *0* | *0* | ***103*** | ***48*** | ***103*** | ***48*** | 100% |
| Sharks | Tiger Shark | *Galeocerdo cuvier* | ***7*** | ***6*** | ***177*** | ***112*** | ***185*** | ***113*** | 96% |
| Sharks | Whitetip Reef Shark | *Triaenodon obesus* | *0* | *0* | ***602*** | ***353*** | ***602*** | ***353*** | 100% |
| Sharks | Other Whaler | Carcharhinidae - undifferentiated | ***15*** | ***13*** | ***40*** | ***28*** | ***55*** | ***30*** | 73% |
| Sharks | Other Shark | Sharks - undifferentiated | ***14*** | ***13*** | *701* | *220* | *715* | *221* | 98% |
| Rays | Sawfishes | Pristidae - undifferentiated | *0* | *0* | ***57*** | ***34*** | ***57*** | ***34*** | 100% |
| Rays | Western Shovelnose Ray | *Aptychotrema vincentiana* | *0* | *0* | ***12*** | ***8*** | ***12*** | ***8*** | 100% |
| Rays | Other Rays Skates | Rays - undifferentiated | *0* | *0* | *45* | *17* | *45* | *17* | 100% |
| Billfish | Black Marlin | *Makaira indica* | ***52*** | ***48*** | ***115*** | ***56*** | ***167*** | ***101*** | 69% |
| Billfish | Blue Marlin | *Makaira nigricans* | ***21*** | ***20*** | ***13*** | ***12*** | ***34*** | ***23*** | 38% |
| Billfish | Sailfish | *Istiophorus platypterus* | ***15*** | ***13*** | *664* | *242* | *679* | *245* | 98% |
| Bonito | Bonito | *Sarda spp* | ***26*** | ***24*** | *0* | *0* | ***26*** | ***24*** | 0% |
| Bream | Northwest Black Bream | *Acanthopagrus palmaris* | ***69*** | ***38*** | ***73*** | ***52*** | ***141*** | ***65*** | 51% |
| Bream | Pink Snapper | *Chrysophrys auratus* | ***1,047*** | ***718*** | ***414*** | ***209*** | ***1,461*** | ***782*** | 28% |
| Bream | Western Yellowfin Bream | *Acanthopagrus morrisoni* | ***431*** | ***232*** | ***268*** | ***163*** | ***699*** | ***356*** | 38% |
| Bream | Other Bream | Sparidae - undifferentiated | ***5*** | ***4*** | ***26*** | ***24*** | ***31*** | ***24*** | 84% |
| Catfish | Eeltail Catfishes | Plotosidae - undifferentiated | ***46*** | ***28*** | ***331*** | ***152*** | ***377*** | ***155*** | 88% |
| Catfish | Giant Sea Catfish | *Arius thalassinus* | **15** | **9** | 2,080 | 444 | 2,094 | 445 | 99% |
| Catfish | Silver Cobbler | *Neoarius midgleyi* | *0* | *0* | ***90*** | ***62*** | ***90*** | ***62*** | 100% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Catfish | Other Catfish | Ariidae - undifferentiated | ***6*** | ***6*** | *965* | *269* | *971* | *269* | 99% |
| Cobia | Cobia | *Rachycentron canadum* | 438 | 86 | 278 | 91 | 715 | 147 | 39% |
| Cod | Barramundi Cod | *Cromileptes altivelis* | ***92*** | ***40*** | ***81*** | ***45*** | *174* | *63* | 47% |
| Cod | Blackspotted Rockcod | *Epinephelus malabaricus* | **1,146** | **527** | 3,109 | 1,181 | 4,255 | 1,629 | 73% |
| Cod | Blacktip Rockcod | *Epinephelus fasciatus* | ***19*** | ***18*** | ***64*** | ***34*** | ***82*** | ***38*** | 77% |
| Cod | Chinaman Rockcod | *Epinephelus rivulatus* | 395 | 100 | 1,497 | 485 | 1,893 | 497 | 79% |
| Cod | Frostback Rockcod | *Epinephelus bilobatus* | ***13*** | ***12*** | ***539*** | ***282*** | ***552*** | ***283*** | 98% |
| Cod | Goldspotted Rockcod | *Epinephelus coioides* | 832 | 218 | 2,284 | 506 | 3,116 | 601 | 73% |
| Cod | Potato Rockcod | *Epinephelus tukula* | *0* | *0* | ***19*** | ***18*** | ***19*** | ***18*** | 100% |
| Cod | Queensland Grouper | *Epinephelus lanceolatus* | *0* | *0* | ***7*** | ***6*** | ***7*** | ***6*** | 100% |
| Cod | Rankin Cod | *Epinephelus multinotatus* | 3,663 | 878 | 1,946 | 551 | 5,608 | 1,196 | 35% |
| Cod | Temperate Basses & Rockcods | Epinephelidae - undifferentiated | ***7*** | ***6*** | ***62*** | ***36*** | ***69*** | ***37*** | 89% |
| Cod | Tomato Rockcod | *Cephalopholis sonnerati* | ***52*** | ***50*** | ***55*** | ***36*** | ***107*** | ***85*** | 51% |
| Cod | Yellowspotted Rockcod | *Epinephelus areolatus* | ***37*** | ***17*** | *1,250* | *370* | *1,287* | *375* | 97% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 4,654 | 662 | 2,855 | 588 | 7,509 | 1,050 | 38% |
| Coral Trout | Yellowedge Coronation Trout | *Variola louti* | ***63*** | ***39*** | ***15*** | ***8*** | ***78*** | ***41*** | 19% |
| Emperor | Bluespotted Emperor | *Lethrinus punctulatus* | ***274*** | ***131*** | *1,656* | *587* | *1,930* | *623* | 86% |
| Emperor | Grass Emperor | *Lethrinus laticaudis* | 5,772 | 1,349 | 9,405 | 2,680 | 15,176 | 3,688 | 62% |
| Emperor | Longnose Emperor | *Lethrinus olivaceus* | ***121*** | ***51*** | ***15*** | ***12*** | *136* | *53* | 11% |
| Emperor | Redspot Emperor | *Lethrinus lentjan* | *0* | *0* | ***104*** | ***96*** | ***104*** | ***96*** | 100% |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | ***307*** | ***132*** | *633* | *241* | *939* | *295* | 67% |
| Emperor | Robinsons' Seabream | *Gymnocranius grandoculis* | ***9*** | ***9*** | ***22*** | ***19*** | ***31*** | ***21*** | 70% |
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 1,503 | 297 | 4,138 | 858 | 5,641 | 1,025 | 73% |
| Emperor | Yellowtail Emperor | *Lethrinus atkinsoni* | *0* | *0* | ***518*** | ***498*** | ***518*** | ***498*** | 100% |
| Flathead | Northern Sand Flathead | *Platycephalus endrachtensis* | ***175*** | ***104*** | ***476*** | ***457*** | ***652*** | ***556*** | 73% |
| Flathead | Yellowtail Flathead | *Platycephalus westraliae* | ***17*** | ***9*** | *0* | *0* | ***17*** | ***9*** | 0% |
| Garfish | Three-by-two Garfish | *Hemiramphus robustus* | ***115*** | ***81*** | *0* | *0* | ***115*** | ***81*** | 0% |
| Garfish | Other Garfish | Hemiramphidae - undifferentiated | *0* | *0* | ***384*** | ***370*** | ***384*** | ***370*** | 100% |
| Giant Perch | Barramundi | *Lates calcarifer* | 1,587 | 485 | 4,214 | 922 | 5,801 | 1,200 | 73% |
| Grunter | Western Sooty Grunter | *Hephaestus jenkinsi* | ***157*** | ***135*** | ***213*** | ***100*** | ***370*** | ***169*** | 58% |
| Grunter Bream | Painted Sweetlips | *Diagramma labiosum* | ***276*** | ***139*** | ***567*** | ***368*** | ***843*** | ***418*** | 67% |
| Grunter Bream | Barred Javelin | *Pomadasys kaakan* | ***217*** | ***93*** | ***498*** | ***278*** | ***715*** | ***362*** | 70% |
| Grunter Bream | Blotched Javelin | *Pomadasys maculatus* | ***15*** | ***9*** | ***22*** | ***14*** | ***36*** | ***17*** | 60% |
| Grunter Bream | Grunter Bream | Haemulidae - undifferentiated | ***7*** | ***6*** | ***152*** | ***134*** | ***160*** | ***140*** | 95% |
| Jewfish | Black Jewfish | *Protonibea diacanthus* | *234* | *85* | *265* | *89* | *500* | *143* | 53% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| King Snapper | Goldband Snapper | *Pristipomoides multidens* | ***806*** | ***588*** | ***401*** | ***210*** | ***1,206*** | ***693*** | 33% |
| King Snapper | Rosy Snapper | *Pristipomoides filamentosus* | *0* | *0* | ***51*** | ***39*** | ***51*** | ***39*** | 100% |
| Leatherjacket | Leatherjacket | Monacanthidae - undifferentiated | *0* | *0* | ***163*** | ***69*** | ***163*** | ***69*** | 100% |
| Lizardfish | Lizardfish Grinners | Bathysauridae, Synodontidae - undifferentiated | *0* | *0* | ***143*** | ***91*** | ***143*** | ***91*** | 100% |
| Longtom | Longtom | Belonidae - undifferentiated | *0* | *0* | ***92*** | ***53*** | ***92*** | ***53*** | 100% |
| Mackerel | Grey Mackerel | *Scomberomorus semifasciatus* | *458* | *175* | ***358*** | ***202*** | ***815*** | ***330*** | 44% |
| Mackerel | School Mackerel | *Scomberomorus queenslandicus* | ***139*** | ***63*** | *146* | *47* | *285* | *87* | 51% |
| Mackerel | Shark Mackerel | *Grammatorcynus bicarinatus* | ***25*** | ***14*** | ***189*** | ***90*** | ***213*** | ***92*** | 89% |
| Mackerel | Spanish Mackerel | *Scomberomorus commerson* | 2,492 | 384 | 3,074 | 825 | 5,566 | 1,095 | 55% |
| Mackerel | Spotted Mackerel | *Scomberomorus munroi* | ***120*** | ***56*** | ***320*** | ***144*** | ***440*** | ***178*** | 73% |
| Mackerel | Wahoo | *Acanthocybium solandri* | ***22*** | ***14*** | ***203*** | ***170*** | ***225*** | ***178*** | 90% |
| Mackerel | Other Mackerel & Tuna | Scombridae - undifferentiated | ***64*** | ***49*** | ***117*** | ***71*** | ***181*** | ***98*** | 65% |
| Mullet | Diamondscale Mullet | *Liza vaigiensis* | ***338*** | ***204*** | *0* | *0* | ***338*** | ***204*** | 0% |
| Mullet | Greenback Mullet | *Liza subviridis* | ***160*** | ***140*** | ***37*** | ***24*** | ***197*** | ***162*** | 19% |
| Mullet | Sea Mullet | *Mugil cephalus* | ***421*** | ***195*** | ***10*** | ***8*** | ***430*** | ***195*** | 2% |
| Mullet | Other Mullet | Mugilidae - undifferentiated | ***194*** | ***108*** | ***116*** | ***102*** | ***310*** | ***194*** | 37% |
| Pearl Perch | Northern Pearl Perch | *Glaucosoma buergeri* | ***47*** | ***20*** | ***121*** | ***70*** | ***167*** | ***87*** | 72% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | ***9*** | ***8*** | ***29*** | ***25*** | ***38*** | ***27*** | 77% |
| Pike | Great Barracuda | *Sphyraena barracuda* | *0* | *0* | ***397*** | ***201*** | ***397*** | ***201*** | 100% |
| Pike | Yellowtail Barracuda | *Sphyraena obtusata* | ***17*** | ***16*** | ***157*** | ***135*** | ***174*** | ***136*** | 90% |
| Queenfish | Queenfish | *Scomberoides spp* | *158* | *54* | *925* | *287* | *1,083* | *305* | 85% |
| Sergeant Baker | Sergeant Baker | *Aulopus purpurissatus* | *0* | *0* | ***61*** | ***49*** | ***61*** | ***49*** | 100% |
| Small Baitfish | Other Herring | Clupeidae - undifferentiated | ***181*** | ***159*** | ***691*** | ***602*** | ***872*** | ***623*** | 79% |
| Threadfin | Blue Threadfin | *Eleutheronema tetradactylum* | 1,404 | 319 | 1,306 | 407 | 2,710 | 576 | 48% |
| Threadfin | King Threadfin | *Polydactylus macrochir* | 622 | 125 | 575 | 179 | 1,197 | 249 | 48% |
| Threadfin Bream | Rosy Threadfin Bream | *Nemipterus furcosus* | ***29*** | ***25*** | ***80*** | ***52*** | ***109*** | ***58*** | 73% |
| Trevally | Amberjack | *Seriola dumerili* | *0* | *0* | ***35*** | ***23*** | ***35*** | ***23*** | 100% |
| Trevally | Bludger Trevally | *Carangoides gymnostethus* | ***144*** | ***59*** | ***727*** | ***296*** | *871* | *305* | 84% |
| Trevally | Giant Trevally | *Caranx ignobilis* | 193 | 72 | 1,667 | 346 | 1,859 | 373 | 90% |
| Trevally | Golden Trevally | *Gnathanodon speciosus* | 968 | 354 | 2,716 | 688 | 3,683 | 862 | 74% |
| Trevally | Rainbow Runner | *Elagatis bipinnulata* | ***26*** | ***24*** | *0* | *0* | ***26*** | ***24*** | 0% |
| Trevally | Turrum | *Carangoides fulvoguttatus* | ***15*** | ***13*** | ***215*** | ***115*** | ***229*** | ***118*** | 94% |
| Trevally | Other Trevally | Carangidae - undifferentiated | ***24*** | ***14*** | ***384*** | ***210*** | ***408*** | ***222*** | 94% |
| Tripletail | Tripletail | *Lobotes surinamensis* | ***67*** | ***31*** | ***83*** | ***53*** | ***150*** | ***83*** | 55% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Tropical Snapper | Chinamanfish | *Symphorus nematophorus* | *126* | *49* | ***208*** | ***93*** | *334* | *123* | 62% |
| Tropical Snapper | Crimson Snapper | *Lutjanus erythropterus* | *1,025* | *314* | *1,966* | *744* | *2,991* | *974* | 66% |
| Tropical Snapper | Flame Snapper | *Etelis coruscens* | *0* | *0* | ***78*** | ***61*** | ***78*** | ***61*** | 100% |
| Tropical Snapper | Golden Snapper | *Lutjanus johnii* | 1,181 | 313 | 1,789 | 635 | 2,969 | 824 | 60% |
| Tropical Snapper | Mangrove Jack | *Lutjanus argentimaculatus* | 1,575 | 383 | 1,781 | 655 | 3,357 | 885 | 53% |
| Tropical Snapper | Maori Snapper | *Lutjanus rivulatus* | ***31*** | ***14*** | ***15*** | ***13*** | ***46*** | ***19*** | 32% |
| Tropical Snapper | Moses' Snapper | *Lutjanus russellii* | *354* | *106* | ***523*** | ***248*** | *878* | *282* | 60% |
| Tropical Snapper | Red Emperor | *Lutjanus sebae* | 4,269 | 812 | 5,590 | 1,001 | 9,859 | 1,642 | 57% |
| Tropical Snapper | Ruby Snapper | *Etelis carbunculus* | ***31*** | ***20*** | ***31*** | ***20*** | ***62*** | ***40*** | 50% |
| Tropical Snapper | Saddletail Snapper | *Lutjanus malabaricus* | **3,472** | **1,636** | 2,574 | 873 | 6,045 | 2,102 | 43% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | 3,542 | 739 | 9,481 | 1,888 | 13,023 | 2,412 | 73% |
| Tropical Snapper | Other Snapper | Lutjanidae - undifferentiated | ***52*** | ***38*** | ***17*** | ***16*** | ***69*** | ***41*** | 25% |
| Tuna | Dogtooth Tuna | *Gymnosarda unicolor* | ***13*** | ***13*** | ***182*** | ***168*** | ***194*** | ***169*** | 93% |
| Tuna | Longtail Tuna | *Thunnus orientalis* | ***80*** | ***67*** | ***130*** | ***120*** | ***210*** | ***138*** | 62% |
| Tuna | Mackerel Tuna | *Euthynnus affinis* | *306* | *100* | *539* | *185* | *844* | *222* | 64% |
| Tuna | Skipjack Tuna | *Katsuwonus pelamis* | ***17*** | ***17*** | *0* | *0* | ***17*** | ***17*** | 0% |
| Tuna | Southern Bluefin Tuna | *Thunnus maccoyii* | ***82*** | ***68*** | *0* | *0* | ***82*** | ***68*** | 0% |
| Tuna | Yellowfin Tuna | *Thunnus albacares* | ***56*** | ***25*** | ***216*** | ***155*** | ***272*** | ***165*** | 80% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | ***26*** | ***24*** | ***60*** | ***42*** | ***86*** | ***48*** | 70% |
| Tuskfish Wrasse | Blackspot Tuskfish | *Choerodon schoenleinii* | 2,157 | 531 | 1,506 | 442 | 3,663 | 850 | 41% |
| Tuskfish Wrasse | Blue Tuskfish | *Choerodon cyanodus* | 1,289 | 381 | 966 | 335 | 2,255 | 614 | 43% |
| Tuskfish Wrasse | Bluebarred Parrotfish | *Scarus ghobban spp complex* | ***104*** | ***96*** | *0* | *0* | ***104*** | ***96*** | 0% |
| Tuskfish Wrasse | Bluespotted Tuskfish | *Choerodon cauteroma* | ***174*** | ***126*** | ***73*** | ***45*** | ***247*** | ***133*** | 30% |
| Tuskfish Wrasse | Foxfish | *Bodianus frenchii* | ***17*** | ***16*** | *0* | *0* | ***17*** | ***16*** | 0% |
| Tuskfish Wrasse | Goldspot Pigfish | *Bodianus perditio* | *0* | *0* | ***13*** | ***12*** | ***13*** | ***12*** | 100% |
| Tuskfish Wrasse | Purple Tuskfish | *Choerodon cephalotes* | *150* | *58* | ***58*** | ***36*** | *208* | *80* | 28% |
| Tuskfish Wrasse | Other Tuskfish | *Choerodon spp* | *0* | *0* | ***107*** | ***60*** | ***107*** | ***60*** | 100% |
| Tuskfish Wrasse | Other Wrasse | Labridae - undifferentiated | ***29*** | ***25*** | ***29*** | ***25*** | ***58*** | ***51*** | 50% |
| Whiting | Goldenline Whiting | *Sillago analis* | *0* | *0* | ***7*** | ***6*** | ***7*** | ***6*** | 100% |
| Finfish Other | Other Eel | Order Anguilliformes - undifferentiated | ***19*** | ***18*** | ***16*** | ***10*** | ***35*** | ***21*** | 46% |
| Finfish Other | Moonfish Batfish | Lampridae - undifferentiated | *0* | *0* | ***212*** | ***117*** | ***212*** | ***117*** | 100% |
| Finfish Other | Oxeye Herring | *Megalops cyprinoides* | ***7*** | ***6*** | ***65*** | ***57*** | ***73*** | ***64*** | 90% |
| Finfish Other | Silver Toadfish | *Lagocephalus sceleratus* | *0* | *0* | ***25*** | ***15*** | ***25*** | ***15*** | 100% |
| Finfish Other | Other Toadfish | Tetraodontidae - undifferentiated | ***13*** | ***12*** | ***36*** | ***19*** | ***49*** | ***23*** | 74% |

**Table 8.** Estimated annual catch (total, kept and released numbers) and proportion released in the Gascoyne Coast bioregion during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); values in italics indicate <30 respondents recorded catches of the species).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cephalopod | Cuttlefish | *Sepia spp* | ***28*** | ***17*** | *0* | *0* | ***28*** | ***17*** | 0% |
| Cephalopod | Octopus | *Octopus spp* | ***353*** | ***336*** | *0* | *0* | ***353*** | ***336*** | 0% |
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | 10,896 | 3,510 | **310** | **200** | 11,206 | 3,525 | 3% |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | *1,129* | *379* | ***142*** | ***64*** | *1,271* | *401* | 11% |
| Lobster | Painted Rock Lobster | *Panulirus versicolor* | ***82*** | ***40*** | ***3*** | ***2*** | ***85*** | ***41*** | 4% |
| Lobster | Ornate Rock Lobster | *Panulirus ornatus* | *253* | *84* | ***85*** | ***55*** | *338* | *122* | 25% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | **22,340** | **9,599** | 10,725 | 3,927 | **33,065** | **13,411** | 32% |
| Crab | Green Mud Crab | *Scylla serrata* | ***48*** | ***37*** | ***10*** | ***5*** | ***58*** | ***41*** | 17% |
| Crab | Brown Mud Crab | *Scylla olivacea* | ***169*** | ***97*** | ***10*** | ***7*** | ***179*** | ***98*** | 5% |
| Sharks | Blacktip Reef Shark | *Carcharhinus melanopterus* | ***77*** | ***46*** | *118* | *47* | *194* | *66* | 60% |
| Sharks | Dusky Whaler | *Carcharhinus obscurus* | **66** | **28** | 1,062 | 399 | 1,128 | 400 | 94% |
| Sharks | Greynurse Shark | *Carcharias taurus* | *0* | *0* | ***17*** | ***17*** | ***17*** | ***17*** | 100% |
| Sharks | Hammerhead Shark | Family Sphyrnidae | *0* | *0* | ***19*** | ***18*** | ***19*** | ***18*** | 100% |
| Sharks | Lemon Shark | *Negaprion acutidens* | *0* | *0* | ***93*** | ***89*** | ***93*** | ***89*** | 100% |
| Sharks | Tiger Shark | *Galeocerdo cuvier* | *0* | *0* | ***674*** | ***593*** | ***674*** | ***593*** | 100% |
| Sharks | Whitetip Reef Shark | *Triaenodon obesus* | ***19*** | ***18*** | ***127*** | ***59*** | ***145*** | ***67*** | 87% |
| Sharks | Wobbegong | Family Orectolobidae | *0* | *0* | ***17*** | ***17*** | ***17*** | ***17*** | 100% |
| Sharks | Other Whaler | Carcharhinidae - undifferentiated | *0* | *0* | ***6*** | ***5*** | ***6*** | ***5*** | 100% |
| Sharks | Other Shark | Sharks - undifferentiated | ***35*** | ***19*** | ***669*** | ***269*** | *705* | *273* | 95% |
| Rays | Western Shovelnose Ray | *Aptychotrema vincentiana* | *0* | *0* | ***21*** | ***14*** | ***21*** | ***14*** | 100% |
| Rays | Other Rays Skates | Rays - undifferentiated | *0* | *0* | ***9*** | ***9*** | ***9*** | ***9*** | 100% |
| Billfish | Black Marlin | *Makaira indica* | ***35*** | ***34*** | ***401*** | ***163*** | *436* | *173* | 92% |
| Billfish | Blue Marlin | *Makaira nigricans* | ***15*** | ***8*** | ***702*** | ***322*** | ***717*** | ***323*** | 98% |
| Billfish | Sailfish | *Istiophorus platypterus* | *0* | *0* | *228* | *90* | *228* | *90* | 100% |
| Billfish | Striped Marlin | *Tetrapturus audax* | *0* | *0* | ***86*** | ***40*** | ***86*** | ***40*** | 100% |
| Bonito | Bonito | *Sarda spp* | ***52*** | ***31*** | ***26*** | ***24*** | ***78*** | ***39*** | 33% |
| Bonito | Oriental Bonito | *Sarda orientalis* | ***5*** | ***4*** | ***23*** | ***22*** | ***28*** | ***23*** | 83% |
| Bream | Frypan Bream | *Argyrops spinifer* | ***69*** | ***32*** | ***8*** | ***4*** | ***77*** | ***32*** | 10% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 8,216 | 1,410 | 34,739 | 11,975 | 42,955 | 12,998 | 81% |
| Bream | Tarwhine | *Rhabdosargus sarba* | ***5*** | ***4*** | ***38*** | ***30*** | ***43*** | ***30*** | 89% |
| Bream | Western Yellowfin Bream | *Acanthopagrus morrisoni* | ***1,694*** | ***1,486*** | ***1,453*** | ***1,105*** | ***3,147*** | ***1,878*** | 46% |
| Catfish | Eeltail Catfishes | Plotosidae - undifferentiated | ***208*** | ***188*** | ***334*** | ***227*** | ***542*** | ***409*** | 62% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Catfish | Giant Sea Catfish | *Arius thalassinus* | *0* | *0* | ***189*** | ***91*** | ***189*** | ***91*** | 100% |
| Catfish | Other Catfish | Ariidae - undifferentiated | *0* | *0* | ***110*** | ***79*** | ***110*** | ***79*** | 100% |
| Cobia | Cobia | *Rachycentron canadum* | 681 | 156 | **292** | **153** | 973 | 257 | 30% |
| Cod | Barramundi Cod | *Cromileptes altivelis* | ***42*** | ***24*** | *0* | *0* | ***42*** | ***24*** | 0% |
| Cod | Blackspotted Rockcod | *Epinephelus malabaricus* | 428 | 146 | **1,569** | **1,015** | **1,997** | **1,029** | 79% |
| Cod | Breaksea Cod | *Epinephelides armatus* | ***243*** | ***149*** | ***104*** | ***60*** | ***347*** | ***161*** | 30% |
| Cod | Chinaman Rockcod | *Epinephelus rivulatus* | 7,615 | 2,010 | 7,955 | 1,736 | 15,571 | 3,140 | 51% |
| Cod | Eightbar Grouper | *Hyporthodus octofasciatus* | ***202*** | ***88*** | *0* | *0* | ***202*** | ***88*** | 0% |
| Cod | Frostback Rockcod | *Epinephelus bilobatus* | ***17*** | ***17*** | ***6*** | ***5*** | ***24*** | ***18*** | 27% |
| Cod | Goldspotted Rockcod | *Epinephelus coioides* | 1,079 | 254 | 1,689 | 477 | 2,768 | 611 | 61% |
| Cod | Potato Rockcod | *Epinephelus tukula* | ***19*** | ***18*** | ***2*** | ***1*** | ***21*** | ***18*** | 9% |
| Cod | Rankin Cod | *Epinephelus multinotatus* | 2,772 | 514 | 1,140 | 410 | 3,912 | 695 | 29% |
| Cod | Temperate Basses & Rockcods | Epinephelidae - undifferentiated | *140* | *54* | ***1,169*** | ***732*** | ***1,309*** | ***734*** | 89% |
| Cod | Yellowspotted Rockcod | *Epinephelus areolatus* | ***372*** | ***171*** | *342* | *111* | *714* | *207* | 48% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 1,802 | 339 | 1,117 | 394 | 2,919 | 575 | 38% |
| Coral Trout | Yellowedge Coronation Trout | *Variola louti* | ***112*** | ***47*** | ***47*** | ***28*** | *159* | *56* | 30% |
| Emperor | Bluespotted Emperor | *Lethrinus punctulatus* | ***172*** | ***122*** | ***403*** | ***290*** | ***575*** | ***408*** | 70% |
| Emperor | Grass Emperor | *Lethrinus laticaudis* | 7,954 | 1,827 | 13,865 | 3,655 | 21,820 | 4,974 | 64% |
| Emperor | Longnose Emperor | *Lethrinus olivaceus* | ***202*** | ***136*** | ***139*** | ***119*** | ***341*** | ***252*** | 41% |
| Emperor | Redspot Emperor | *Lethrinus lentjan* | ***10*** | ***7*** | ***10*** | ***7*** | ***19*** | ***10*** | 50% |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | 5,526 | 1,215 | 7,487 | 1,826 | 13,013 | 2,635 | 58% |
| Emperor | Robinsons' Seabream | *Gymnocranius grandoculis* | *950* | *309* | ***46*** | ***24*** | *995* | *313* | 5% |
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 6,119 | 1,004 | 6,356 | 1,261 | 12,474 | 2,084 | 51% |
| Emperor | Yellowtail Emperor | *Lethrinus atkinsoni* | ***75*** | ***71*** | ***86*** | ***54*** | ***161*** | ***89*** | 54% |
| Flathead | Northern Sand Flathead | *Platycephalus endrachtensis* | ***98*** | ***42*** | ***54*** | ***38*** | *152* | *58* | 35% |
| Flathead | Yellowtail Flathead | *Platycephalus westraliae* | ***71*** | ***33*** | ***38*** | ***30*** | ***109*** | ***45*** | 35% |
| Flounder | Smalltooth Flounder | *Pseudorhombus jenynsii* | ***12*** | ***12*** | *0* | *0* | ***12*** | ***12*** | 0% |
| Garfish | Southern Garfish | *Hyporhamphus melanochir* | ***345*** | ***267*** | *0* | *0* | ***345*** | ***267*** | 0% |
| Garfish | Three-by-two Garfish | *Hemiramphus robustus* | ***908*** | ***669*** | ***82*** | ***75*** | ***991*** | ***677*** | 8% |
| Grunter | Western Striped Grunter | *Pelates octolineatus* | *0* | *0* | ***162*** | ***86*** | ***162*** | ***86*** | 100% |
| Grunter Bream | Painted Sweetlips | *Diagramma labiosum* | *326* | *121* | ***324*** | ***189*** | *650* | *227* | 50% |
| Grunter Bream | Barred Javelin | *Pomadasys kaakan* | *0* | *0* | ***14*** | ***11*** | ***14*** | ***11*** | 100% |
| Grunter Bream | Grunter Bream | Haemulidae - undifferentiated | *0* | *0* | ***192*** | ***185*** | ***192*** | ***185*** | 100% |
| Jewfish | Mulloway | *Argyrosomus japonicus* | *210* | *68* | ***858*** | ***375*** | *1,068* | *392* | 80% |
| King Snapper | Goldband Snapper | *Pristipomoides multidens* | 3,070 | 957 | 1,167 | 419 | 4,237 | 1,292 | 28% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| King Snapper | Rosy Snapper | *Pristipomoides filamentosus* | *685* | *264* | ***50*** | ***28*** | *735* | *281* | 7% |
| King Snapper | Sharptooth Snapper | *Pristipomoides typus* | ***74*** | ***45*** | ***34*** | ***31*** | ***108*** | ***55*** | 31% |
| Leatherjacket | Leatherjacket | Monacanthidae - undifferentiated | ***2*** | ***1*** | ***139*** | ***63*** | ***141*** | ***63*** | 99% |
| Lizardfish | Lizardfish Grinners | Bathysauridae, Synodontidae - undifferentiated | ***84*** | ***48*** | ***297*** | ***131*** | *381* | *152* | 78% |
| Longtom | Longtom | Belonidae - undifferentiated | ***24*** | ***13*** | ***358*** | ***193*** | ***382*** | ***193*** | 94% |
| Mackerel | Blue Mackerel | *Scomber australasicus* | ***35*** | ***34*** | *0* | *0* | ***35*** | ***34*** | 0% |
| Mackerel | Grey Mackerel | *Scomberomorus semifasciatus* | ***39*** | ***21*** | *0* | *0* | ***39*** | ***21*** | 0% |
| Mackerel | School Mackerel | *Scomberomorus queenslandicus* | ***491*** | ***210*** | *296* | *118* | *787* | *306* | 38% |
| Mackerel | Shark Mackerel | *Grammatorcynus bicarinatus* | *341* | *136* | *324* | *101* | *665* | *169* | 49% |
| Mackerel | Spanish Mackerel | *Scomberomorus commerson* | 1,954 | 368 | 1,199 | 286 | 3,153 | 565 | 38% |
| Mackerel | Spotted Mackerel | *Scomberomorus munroi* | ***142*** | ***61*** | ***332*** | ***239*** | ***475*** | ***248*** | 70% |
| Mackerel | Wahoo | *Acanthocybium solandri* | *182* | *57* | ***29*** | ***20*** | *212* | *60* | 14% |
| Mahi Mahi | Mahi Mahi | *Coryphaena spp* | ***134*** | ***55*** | ***433*** | ***371*** | ***567*** | ***375*** | 76% |
| Mullet | Bluetail Mullet | *Valamugil buchanani* | ***156*** | ***133*** | *0* | *0* | ***156*** | ***133*** | 0% |
| Mullet | Sea Mullet | *Mugil cephalus* | ***1,088*** | ***683*** | ***1,085*** | ***1,014*** | ***2,173*** | ***1,671*** | 50% |
| Mullet | Other Mullet | Mugilidae - undifferentiated | ***112*** | ***102*** | ***3*** | ***2*** | ***116*** | ***102*** | 3% |
| Pearl Perch | Northern Pearl Perch | *Glaucosoma buergeri* | *423* | *101* | ***114*** | ***64*** | *537* | *127* | 21% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | ***7*** | ***7*** | ***12*** | ***11*** | ***19*** | ***13*** | 61% |
| Pike | Great Barracuda | *Sphyraena barracuda* | ***23*** | ***18*** | *167* | *56* | *190* | *63* | 88% |
| Pike | Yellowtail Barracuda | *Sphyraena obtusata* | ***35*** | ***34*** | ***85*** | ***38*** | ***120*** | ***51*** | 71% |
| Queenfish | Queenfish | *Scomberoides spp* | ***41*** | ***19*** | ***474*** | ***256*** | ***515*** | ***257*** | 92% |
| Sergeant Baker | Sergeant Baker | *Aulopus purpurissatus* | ***284*** | ***269*** | *0* | *0* | ***284*** | ***269*** | 0% |
| Small Baitfish | Small Baitfish | Clupeidae, Engralidae & Atherinidae - undifferentiated | ***10*** | ***7*** | *0* | *0* | ***10*** | ***7*** | 0% |
| Small Baitfish | Other Herring | Clupeidae - undifferentiated | *0* | *0* | ***8*** | ***4*** | ***8*** | ***4*** | 100% |
| Sweep | Sea Sweep | *Scorpis aequipinnis* | ***12*** | ***12*** | *0* | *0* | ***12*** | ***12*** | 0% |
| Tailor | Tailor | *Pomatomus saltatrix* | ***179*** | ***108*** | ***206*** | ***150*** | ***385*** | ***232*** | 54% |
| Threadfin | Blue Threadfin | *Eleutheronema tetradactylum* | ***24*** | ***15*** | *0* | *0* | ***24*** | ***15*** | 0% |
| Threadfin Bream | Rosy Threadfin Bream | *Nemipterus furcosus* | ***72*** | ***46*** | ***10*** | ***7*** | ***82*** | ***48*** | 12% |
| Threadfin Bream | Western Butterfish | *Pentapodus vitta* | ***291*** | ***274*** | ***912*** | ***464*** | ***1,202*** | ***548*** | 76% |
| Trevalla | Blue-Eye Trevalla | *Hyperoglyphe antarctica* | ***5*** | ***4*** | *0* | *0* | ***5*** | ***4*** | 0% |
| Trevally | Amberjack | *Seriola dumerili* | ***10*** | ***5*** | ***29*** | ***18*** | ***39*** | ***18*** | 74% |
| Trevally | Bludger Trevally | *Carangoides gymnostethus* | ***42*** | ***26*** | ***50*** | ***40*** | ***93*** | ***48*** | 54% |
| Trevally | Common Dart | *Trachinotus botla* | *0* | *0* | ***803*** | ***773*** | ***803*** | ***773*** | 100% |
| Trevally | Giant Trevally | *Caranx ignobilis* | ***244*** | ***155*** | ***1,366*** | ***980*** | ***1,609*** | ***995*** | 85% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Trevally | Golden Trevally | *Gnathanodon speciosus* | *417* | *146* | ***2,207*** | ***1,526*** | ***2,623*** | ***1,534*** | 84% |
| Trevally | Rainbow Runner | *Elagatis bipinnulata* | ***3*** | ***2*** | *0* | *0* | ***3*** | ***2*** | 0% |
| Trevally | Samsonfish | *Seriola hippos* | ***24*** | ***15*** | *0* | *0* | ***24*** | ***15*** | 0% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | ***484*** | ***271*** | ***201*** | ***104*** | ***685*** | ***324*** | 29% |
| Trevally | Turrum | *Carangoides fulvoguttatus* | ***3*** | ***2*** | ***52*** | ***50*** | ***56*** | ***50*** | 94% |
| Trevally | Other Trevally | Carangidae - undifferentiated | ***13*** | ***8*** | ***394*** | ***337*** | ***407*** | ***337*** | 97% |
| Tropical Snapper | Brownstripe Snapper | *Lutjanus vitta* | ***5*** | ***4*** | *0* | *0* | ***5*** | ***4*** | 0% |
| Tropical Snapper | Chinamanfish | *Symphorus nematophorus* | ***52*** | ***23*** | ***71*** | ***67*** | ***123*** | ***71*** | 58% |
| Tropical Snapper | Crimson Snapper | *Lutjanus erythropterus* | ***150*** | ***74*** | ***189*** | ***96*** | *339* | *135* | 56% |
| Tropical Snapper | Darktail Snapper | *Lutjanus lemniscatus* | ***8*** | ***4*** | *0* | *0* | ***8*** | ***4*** | 0% |
| Tropical Snapper | Flame Snapper | *Etelis coruscens* | ***3*** | ***2*** | *0* | *0* | ***3*** | ***2*** | 0% |
| Tropical Snapper | Mangrove Jack | *Lutjanus argentimaculatus* | *366* | *128* | *382* | *149* | *748* | *255* | 51% |
| Tropical Snapper | Maori Snapper | *Lutjanus rivulatus* | ***5*** | ***4*** | *0* | *0* | ***5*** | ***4*** | 0% |
| Tropical Snapper | Moses' Snapper | *Lutjanus russellii* | ***399*** | ***196*** | ***45*** | ***21*** | ***444*** | ***198*** | 10% |
| Tropical Snapper | Red Emperor | *Lutjanus sebae* | 3,113 | 654 | 2,352 | 688 | 5,466 | 1,046 | 43% |
| Tropical Snapper | Ruby Snapper | *Etelis carbunculus* | ***389*** | ***210*** | ***35*** | ***34*** | ***424*** | ***213*** | 8% |
| Tropical Snapper | Saddletail Snapper | *Lutjanus malabaricus* | ***92*** | ***43*** | ***5*** | ***4*** | ***97*** | ***45*** | 5% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | 1,530 | 329 | 1,536 | 307 | 3,066 | 484 | 50% |
| Tropical Snapper | Other Snapper | Lutjanidae - undifferentiated | ***84*** | ***35*** | ***215*** | ***127*** | ***298*** | ***136*** | 72% |
| Tuna | Longtail Tuna | *Thunnus orientalis* | ***48*** | ***27*** | ***144*** | ***95*** | ***192*** | ***100*** | 75% |
| Tuna | Mackerel Tuna | *Euthynnus affinis* | ***144*** | ***80*** | *339* | *120* | *483* | *161* | 70% |
| Tuna | Skipjack Tuna | *Katsuwonus pelamis* | ***64*** | ***39*** | ***175*** | ***152*** | ***239*** | ***159*** | 73% |
| Tuna | Southern Bluefin Tuna | *Thunnus maccoyii* | ***55*** | ***26*** | ***6*** | ***6*** | ***61*** | ***28*** | 10% |
| Tuna | Yellowfin Tuna | *Thunnus albacares* | *292* | *80* | ***164*** | ***67*** | *457* | *126* | 36% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | 1,278 | 309 | **1,318** | **583** | 2,596 | 847 | 51% |
| Tuskfish Wrasse | Blackspot Tuskfish | *Choerodon schoenleinii* | 1,016 | 280 | **563** | **335** | 1,579 | 535 | 36% |
| Tuskfish Wrasse | Blue Tuskfish | *Choerodon cyanodus* | *677* | *229* | *296* | *105* | *973* | *274* | 30% |
| Tuskfish Wrasse | Bluebarred Parrotfish | *Scarus ghobban spp complex* | ***51*** | ***35*** | ***186*** | ***168*** | ***237*** | ***172*** | 78% |
| Tuskfish Wrasse | Bluespotted Tuskfish | *Choerodon cauteroma* | ***66*** | ***30*** | ***172*** | ***127*** | ***238*** | ***135*** | 72% |
| Tuskfish Wrasse | Brownspotted Wrasse | *Notolabrus parilus* | ***5*** | ***4*** | ***529*** | ***422*** | ***534*** | ***422*** | 99% |
| Tuskfish Wrasse | Goldspot Pigfish | *Bodianus perditio* | *168* | *51* | ***69*** | ***38*** | *236* | *70* | 29% |
| Tuskfish Wrasse | Purple Tuskfish | *Choerodon cephalotes* | ***46*** | ***26*** | ***58*** | ***38*** | ***104*** | ***46*** | 56% |
| Tuskfish Wrasse | Western King Wrasse | *Coris auricularis* | *0* | *0* | ***144*** | ***102*** | ***144*** | ***102*** | 100% |
| Tuskfish Wrasse | Other Parrotfish | Scaridae - undifferentiated | *0* | *0* | ***40*** | ***26*** | ***40*** | ***26*** | 100% |
| Tuskfish Wrasse | Other Wrasse | Labridae - undifferentiated | *0* | *0* | ***41*** | ***26*** | ***41*** | ***26*** | 100% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Whiting | Goldenline Whiting | *Sillago analis* | ***35*** | ***34*** | *0* | *0* | ***35*** | ***34*** | 0% |
| Whiting | School Whiting | *Sillago schomburgkii, bassensis & vittata* | *1,932* | *703* | ***470*** | ***242*** | *2,402* | *895* | 20% |
| Whiting | Western Trumpeter Whiting | *Sillago burrus* | ***70*** | ***67*** | ***17*** | ***17*** | ***87*** | ***84*** | 20% |
| Wreckfish | Bass Groper | *Polyprion americanus* | ***7*** | ***4*** | *0* | *0* | ***7*** | ***4*** | 0% |
| Finfish Other | Conger Eel | *Conger spp* | *0* | *0* | ***5*** | ***4*** | ***5*** | ***4*** | 100% |
| Finfish Other | Silver Toadfish | *Lagocephalus sceleratus* | ***26*** | ***24*** | ***166*** | ***85*** | ***192*** | ***102*** | 87% |
| Finfish Other | Weeping Toadfish | *Torquigener pleurogramma* | *0* | *0* | ***340*** | ***154*** | ***340*** | ***154*** | 100% |
| Finfish Other | Other Toadfish | Tetraodontidae - undifferentiated | ***12*** | ***11*** | ***159*** | ***110*** | ***171*** | ***111*** | 93% |

**Table 9.** Estimated annual catch (total, kept and released numbers) and proportion released in the West Coast bioregion during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); values in italics indicate <30 respondents recorded catches of the species).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Abalone | Roe's Abalone | *Haliotis roei* | *7,957* | *2,341* | ***269*** | ***185*** | *8,226* | *2,423* | 3% |
| Abalone | Greenlip Abalone | *Haliotis laevigata* | ***1,535*** | ***818*** | ***68*** | ***41*** | ***1,603*** | ***831*** | 4% |
| Abalone | Brownlip Abalone | *Haliotis conicopora* | ***784*** | ***335*** | ***56*** | ***53*** | ***840*** | ***359*** | 7% |
| Cephalopod | Cuttlefish | *Sepia spp* | 2,740 | 432 | 1,085 | 230 | 3,824 | 513 | 28% |
| Cephalopod | Octopus | *Octopus spp* | 1,310 | 248 | 324 | 101 | 1,634 | 294 | 20% |
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | 64,508 | 6,816 | 2,305 | 613 | 66,813 | 7,126 | 3% |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | 453,475 | 38,344 | 240,267 | 31,951 | 693,742 | 64,221 | 35% |
| Lobster | Southern Rock Lobster | *Jasus edwardsii* | ***5,130*** | ***2,336*** | ***3,904*** | ***2,084*** | ***9,035*** | ***4,355*** | 43% |
| Lobster | Painted Rock Lobster | *Panulirus versicolor* | *0* | *0* | ***52*** | ***50*** | ***52*** | ***50*** | 100% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | 249,112 | 20,719 | 373,455 | 35,792 | 622,567 | 54,175 | 60% |
| Crab | Green Mud Crab | *Scylla serrata* | ***52*** | ***50*** | ***690*** | ***624*** | ***743*** | ***630*** | 93% |
| Sharks | Blacktip Reef Shark | *Carcharhinus melanopterus* | ***113*** | ***49*** | ***203*** | ***85*** | *315* | *105* | 64% |
| Sharks | Bronze Whaler | *Carcharhinus brachyurus* | 342 | 91 | 996 | 245 | 1,338 | 267 | 74% |
| Sharks | Dusky Whaler | *Carcharhinus obscurus* | *0* | *0* | ***54*** | ***30*** | ***54*** | ***30*** | 100% |
| Sharks | Greynurse Shark | *Carcharias taurus* | *0* | *0* | ***52*** | ***50*** | ***52*** | ***50*** | 100% |
| Sharks | Gummy Sharks | *Mustelus antarcticus & M stevensi* | 821 | 185 | 657 | 145 | 1,478 | 249 | 44% |
| Sharks | Hammerhead Shark | Family Sphyrnidae | ***19*** | ***18*** | ***34*** | ***21*** | ***53*** | ***28*** | 65% |
| Sharks | Lemon Shark | *Negaprion acutidens* | *0* | *0* | ***17*** | ***13*** | ***17*** | ***13*** | 100% |
| Sharks | Port Jackson Shark | *Heterodontus portusjacksoni* | 0 | 0 | 942 | 185 | 942 | 185 | 100% |
| Sharks | Sandbar Shark | *Carcharhinus plumbeus* | ***27*** | ***20*** | ***14*** | ***13*** | ***42*** | ***24*** | 34% |
| Sharks | Tiger Shark | *Galeocerdo cuvier* | *0* | *0* | ***82*** | ***35*** | ***82*** | ***35*** | 100% |
| Sharks | Whiskery Shark | *Furgaleus macki* | *179* | *69* | *104* | *41* | *283* | *88* | 37% |
| Sharks | Wobbegong | Family Orectolobidae | *211* | *78* | *426* | *100* | *637* | *138* | 67% |
| Sharks | Other Whaler | Carcharhinidae - undifferentiated | *0* | *0* | ***25*** | ***24*** | ***25*** | ***24*** | 100% |
| Sharks | Other Shark | Sharks - undifferentiated | ***124*** | ***55*** | *633* | *164* | *757* | *175* | 84% |
| Rays | Western Shovelnose Ray | *Aptychotrema vincentiana* | 0 | 0 | 1,005 | 289 | 1,005 | 289 | 100% |
| Rays | Other Rays Skates | Rays - undifferentiated | **35** | **34** | 2,468 | 411 | 2,503 | 412 | 99% |
| Barracouta | Barracouta | *Thyrsites atun* | *0* | *0* | ***17*** | ***17*** | ***17*** | ***17*** | 100% |
| Billfish | Black Marlin | *Makaira indica* | *0* | *0* | ***11*** | ***11*** | ***11*** | ***11*** | 100% |
| Billfish | Blue Marlin | *Makaira nigricans* | *0* | *0* | ***94*** | ***71*** | ***94*** | ***71*** | 100% |
| Billfish | Striped Marlin | *Tetrapturus audax* | *0* | *0* | ***44*** | ***42*** | ***44*** | ***42*** | 100% |
| Bonito | Bonito | *Sarda spp* | ***116*** | ***66*** | ***105*** | ***101*** | ***220*** | ***121*** | 48% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Bream | Black Bream | *Acanthopagrus butcheri* | 2,269 | 724 | 10,893 | 3,168 | 13,162 | 3,534 | 83% |
| Bream | Frypan Bream | *Argyrops spinifer* | ***14*** | ***13*** | ***71*** | ***67*** | ***85*** | ***80*** | 83% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 17,618 | 1,436 | 43,829 | 3,909 | 61,446 | 4,922 | 71% |
| Bream | Tarwhine | *Rhabdosargus sarba* | 1,213 | 473 | 3,529 | 1,098 | 4,742 | 1,233 | 74% |
| Bream | Other Bream | Sparidae - undifferentiated | ***54*** | ***38*** | ***19*** | ***18*** | ***72*** | ***42*** | 26% |
| Catfish | Eeltail Catfishes | Plotosidae - undifferentiated | *0* | *0* | ***35*** | ***34*** | ***35*** | ***34*** | 100% |
| Catfish | Estuary Cobbler | *Cnidoglanis macrocephalus* | ***102*** | ***71*** | ***85*** | ***59*** | ***187*** | ***123*** | 46% |
| Catfish | Giant Sea Catfish | *Arius thalassinus* | *0* | *0* | ***327*** | ***176*** | ***327*** | ***176*** | 100% |
| Cobia | Cobia | *Rachycentron canadum* | ***87*** | ***40*** | ***19*** | ***14*** | *106* | *42* | 18% |
| Cod | Blackspotted Rockcod | *Epinephelus malabaricus* | 287 | 99 | 1,763 | 463 | 2,050 | 475 | 86% |
| Cod | Breaksea Cod | *Epinephelides armatus* | 9,128 | 895 | 6,610 | 760 | 15,738 | 1,437 | 42% |
| Cod | Chinaman Rockcod | *Epinephelus rivulatus* | **1,951** | **1,019** | 1,649 | 380 | 3,600 | 1,173 | 46% |
| Cod | Eightbar Grouper | *Hyporthodus octofasciatus* | ***182*** | ***152*** | ***179*** | ***137*** | ***361*** | ***288*** | 50% |
| Cod | Goldspotted Rockcod | *Epinephelus coioides* | *686* | *237* | ***772*** | ***310*** | *1,458* | *459* | 53% |
| Cod | Harlequin Fish | *Othos dentex* | 1,943 | 293 | **651** | **271** | 2,594 | 499 | 25% |
| Cod | Queensland Grouper | *Epinephelus lanceolatus* | *0* | *0* | ***12*** | ***11*** | ***12*** | ***11*** | 100% |
| Cod | Rankin Cod | *Epinephelus multinotatus* | ***43*** | ***21*** | ***78*** | ***43*** | ***120*** | ***49*** | 65% |
| Cod | Temperate Basses & Rockcods | Epinephelidae - undifferentiated | *239* | *92* | ***1,052*** | ***538*** | ***1,291*** | ***545*** | 81% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 1,640 | 433 | **1,774** | **725** | 3,413 | 1,132 | 52% |
| Coral Trout | Yellowedge Coronation Trout | *Variola louti* | ***33*** | ***21*** | *0* | *0* | ***33*** | ***21*** | 0% |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | 2,066 | 455 | 5,370 | 1,300 | 7,436 | 1,604 | 72% |
| Emperor | Robinsons' Seabream | *Gymnocranius grandoculis* | ***12*** | ***12*** | ***155*** | ***105*** | ***167*** | ***105*** | 93% |
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 669 | 155 | 1,717 | 601 | 2,386 | 667 | 72% |
| Emperor | Other Emperor | Lethrinidae - undifferentiated | *378* | *137* | ***569*** | ***256*** | *947* | *355* | 60% |
| Flathead | Southern Bluespotted Flathead | *Platycephalus speculator* | 2,899 | 760 | 11,001 | 1,817 | 13,899 | 2,215 | 79% |
| Flathead | Yellowtail Flathead | *Platycephalus westraliae* | 814 | 195 | 8,830 | 1,878 | 9,644 | 1,949 | 92% |
| Flounder | Smalltooth Flounder | *Pseudorhombus jenynsii* | *141* | *53* | ***46*** | ***35*** | *187* | *65* | 25% |
| Flounder | Other Flatfish | *Bothidae & Pleuronectidae spp* | ***50*** | ***39*** | ***12*** | ***12*** | ***62*** | ***40*** | 20% |
| Garfish | Southern Garfish | *Hyporhamphus melanochir* | ***125*** | ***57*** | ***1,815*** | ***923*** | ***1,940*** | ***925*** | 94% |
| Garfish | Three-by-two Garfish | *Hemiramphus robustus* | ***319*** | ***202*** | ***175*** | ***168*** | ***494*** | ***284*** | 35% |
| Garfish | Other Garfish | Hemiramphidae - undifferentiated | ***279*** | ***269*** | ***17*** | ***17*** | ***297*** | ***269*** | 6% |
| Giant Perch | Sand Bass | *Psammoperca waigiensis* | ***81*** | ***46*** | ***127*** | ***77*** | ***208*** | ***89*** | 61% |
| Goatfish | Bluespotted Goatfish | *Upeneichthys vlamingii* | *512* | *171* | *750* | *266* | *1,262* | *319* | 59% |
| Grunter | Sea Trumpeter | *Pelsartia humeralis* | **360** | **182** | 4,070 | 1,201 | 4,430 | 1,217 | 92% |
| Grunter | Western Striped Grunter | *Pelates octolineatus* | ***195*** | ***162*** | *3,301* | *889* | *3,496* | *919* | 94% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Grunter | Other Trumpeter | *Latridopsis spp* | ***262*** | ***252*** | ***489*** | ***362*** | ***751*** | ***441*** | 65% |
| Grunter Bream | Painted Sweetlips | *Diagramma labiosum* | *490* | *162* | *308* | *115* | *798* | *211* | 39% |
| Gurnard | Bighead Gurnard Perch | *Neosebastes pandus* | **151** | **84** | 1,818 | 381 | 1,969 | 392 | 92% |
| Gurnard | Gurnard | Neosebastidae - undifferentiated | **224** | **117** | 2,084 | 356 | 2,308 | 376 | 90% |
| Jewfish | Mulloway | *Argyrosomus japonicus* | *184* | *62* | ***26*** | ***19*** | *210* | *65* | 12% |
| King Snapper | Rosy Snapper | *Pristipomoides filamentosus* | *0* | *0* | ***110*** | ***101*** | ***110*** | ***101*** | 100% |
| King Snapper | Sharptooth Snapper | *Pristipomoides typus* | *0* | *0* | ***56*** | ***55*** | ***56*** | ***55*** | 100% |
| Leatherjacket | Horseshoe Leatherjacket | *Meuschenia hippocrepis* | ***105*** | ***48*** | ***515*** | ***394*** | ***620*** | ***397*** | 83% |
| Leatherjacket | Sixspine Leatherjacket | *Meuschenia freycineti* | ***17*** | ***17*** | ***128*** | ***78*** | ***145*** | ***80*** | 88% |
| Leatherjacket | Leatherjacket | Monacanthidae - undifferentiated | 558 | 198 | 1,070 | 365 | 1,627 | 458 | 66% |
| Lizardfish | Lizardfish Grinners | Bathysauridae, Synodontidae - undifferentiated | *0* | *0* | ***148*** | ***94*** | ***148*** | ***94*** | 100% |
| Longtom | Longtom | Belonidae - undifferentiated | ***9*** | ***9*** | *0* | *0* | ***9*** | ***9*** | 0% |
| Mackerel | Blue Mackerel | *Scomber australasicus* | ***382*** | ***252*** | ***81*** | ***68*** | ***464*** | ***261*** | 18% |
| Mackerel | Grey Mackerel | *Scomberomorus semifasciatus* | ***33*** | ***22*** | *0* | *0* | ***33*** | ***22*** | 0% |
| Mackerel | School Mackerel | *Scomberomorus queenslandicus* | ***52*** | ***38*** | ***75*** | ***71*** | ***127*** | ***108*** | 59% |
| Mackerel | Shark Mackerel | *Grammatorcynus bicarinatus* | ***56*** | ***29*** | ***38*** | ***22*** | *94* | *37* | 40% |
| Mackerel | Spanish Mackerel | *Scomberomorus commerson* | *775* | *233* | ***72*** | ***33*** | *847* | *238* | 9% |
| Mackerel | Spotted Mackerel | *Scomberomorus munroi* | ***11*** | ***11*** | *0* | *0* | ***11*** | ***11*** | 0% |
| Mackerel | Other Mackerel & Tuna | Scombridae - undifferentiated | ***30*** | ***21*** | ***78*** | ***48*** | ***108*** | ***52*** | 72% |
| Mahi Mahi | Mahi Mahi | *Coryphaena spp* | *303* | *121* | ***367*** | ***252*** | ***669*** | ***303*** | 55% |
| Morwong | Blue Morwong | *Nemadactylus valenciennesi* | 1,240 | 322 | 307 | 96 | 1,547 | 339 | 20% |
| Morwong | Dusky Morwong | *Dactylophora nigricans* | *0* | *0* | ***19*** | ***18*** | ***19*** | ***18*** | 100% |
| Morwong | Other Morwong | Cheilodactylidae - undifferentiated | ***12*** | ***12*** | *0* | *0* | ***12*** | ***12*** | 0% |
| Mullet | Sea Mullet | *Mugil cephalus* | ***5,977*** | ***4,921*** | ***112*** | ***91*** | ***6,089*** | ***4,922*** | 2% |
| Mullet | Yelloweye Mullet | *Aldrichetta forsteri* | ***3,391*** | ***2,387*** | ***19*** | ***18*** | ***3,410*** | ***2,387*** | 1% |
| Mullet | Other Mullet | Mugilidae - undifferentiated | ***788*** | ***768*** | *0* | *0* | ***788*** | ***768*** | 0% |
| Pearl Perch | Northern Pearl Perch | *Glaucosoma buergeri* | ***11*** | ***11*** | *0* | *0* | ***11*** | ***11*** | 0% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 25,627 | 1,898 | 37,441 | 4,426 | 63,068 | 5,842 | 59% |
| Pike | Snook | *Sphyraena novaehollandiae* | ***974*** | ***398*** | *611* | *222* | *1,585* | *565* | 39% |
| Pike | Yellowtail Barracuda | *Sphyraena obtusata* | ***68*** | ***38*** | ***265*** | ***130*** | ***333*** | ***144*** | 80% |
| Pike | Other Pike | Sphyraenidae - undifferentiated | ***200*** | ***132*** | ***169*** | ***105*** | ***368*** | ***169*** | 46% |
| Redfish | Bight Redfish | *Centroberyx gerrardi* | 800 | 181 | 264 | 105 | 1,065 | 241 | 25% |
| Redfish | Swallowtail | *Centroberyx lineatus* | *186* | *66* | ***298*** | ***167*** | *484* | *193* | 62% |
| Redfish | Yelloweye Redfish | *Centroberyx australis* | ***17*** | ***17*** | *0* | *0* | ***17*** | ***17*** | 0% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Salmon Herring | Australian Herring | *Arripis georgianus* | 82,746 | 9,998 | 19,883 | 2,599 | 102,628 | 11,289 | 19% |
| Salmon Herring | Western Australian Salmon | *Arripis truttaceus* | 1,207 | 274 | **2,068** | **925** | 3,275 | 1,043 | 63% |
| Sergeant Baker | Sergeant Baker | *Aulopus purpurissatus* | 1,250 | 311 | 3,674 | 559 | 4,925 | 691 | 75% |
| Small Baitfish | Small Baitfish | Clupeidae, Engralidae & Atherinidae - undifferentiated | ***170*** | ***161*** | *0* | *0* | ***170*** | ***161*** | 0% |
| Sweep | Banded Sweep | *Scorpis georgiana* | *269* | *99* | *743* | *266* | *1,012* | *284* | 73% |
| Sweep | Sea Sweep | *Scorpis aequipinnis* | 520 | 141 | 999 | 254 | 1,519 | 307 | 66% |
| Sweep | Silver Drummer | *Kyphosus spp complex* | ***19*** | ***18*** | ***57*** | ***54*** | ***75*** | ***56*** | 75% |
| Tailor | Tailor | *Pomatomus saltatrix* | 5,084 | 1,357 | 8,372 | 2,859 | 13,456 | 3,664 | 62% |
| Threadfin Bream | Western Butterfish | *Pentapodus vitta* | 3,596 | 1,176 | 13,999 | 3,119 | 17,595 | 3,490 | 80% |
| Trevalla | Blue-Eye Trevalla | *Hyperoglyphe antarctica* | ***76*** | ***44*** | ***300*** | ***293*** | ***376*** | ***296*** | 80% |
| Trevally | Amberjack | *Seriola dumerili* | ***82*** | ***41*** | ***119*** | ***83*** | ***202*** | ***93*** | 59% |
| Trevally | Common Dart | *Trachinotus botla* | ***17*** | ***17*** | ***35*** | ***24*** | ***52*** | ***38*** | 67% |
| Trevally | Giant Trevally | *Caranx ignobilis* | ***25*** | ***18*** | ***96*** | ***71*** | ***120*** | ***74*** | 80% |
| Trevally | Golden Trevally | *Gnathanodon speciosus* | ***700*** | ***413*** | ***113*** | ***110*** | ***813*** | ***497*** | 14% |
| Trevally | Samsonfish | *Seriola hippos* | 1,261 | 212 | 5,592 | 979 | 6,853 | 1,047 | 82% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | 22,879 | 3,168 | 18,146 | 3,817 | 41,024 | 6,496 | 44% |
| Trevally | Turrum | *Carangoides fulvoguttatus* | ***35*** | ***34*** | ***70*** | ***67*** | ***105*** | ***101*** | 67% |
| Trevally | Yellowtail Kingfish | *Seriola lalandi* | 824 | 237 | **1,002** | **608** | 1,827 | 664 | 55% |
| Trevally | Yellowtail Scad | *Trachurus novaezelandiae* | ***751*** | ***535*** | ***192*** | ***169*** | ***943*** | ***575*** | 20% |
| Trevally | Other Trevally | Carangidae - undifferentiated | ***119*** | ***56*** | ***12*** | ***11*** | ***130*** | ***58*** | 9% |
| Tripletail | Tripletail | *Lobotes surinamensis* | ***12*** | ***11*** | ***17*** | ***17*** | ***29*** | ***20*** | 60% |
| Tropical Snapper | Brownstripe Snapper | *Lutjanus vitta* | *0* | *0* | ***14*** | ***13*** | ***14*** | ***13*** | 100% |
| Tropical Snapper | Crimson Snapper | *Lutjanus erythropterus* | ***126*** | ***51*** | ***26*** | ***18*** | *151* | *60* | 17% |
| Tropical Snapper | Darktail Snapper | *Lutjanus lemniscatus* | ***300*** | ***293*** | *0* | *0* | ***300*** | ***293*** | 0% |
| Tropical Snapper | Flame Snapper | *Etelis coruscens* | *0* | *0* | ***122*** | ***118*** | ***122*** | ***118*** | 100% |
| Tropical Snapper | Red Emperor | *Lutjanus sebae* | *527* | *126* | ***497*** | ***377*** | ***1,024*** | ***439*** | 48% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | ***60*** | ***47*** | ***283*** | ***126*** | ***344*** | ***165*** | 82% |
| Tropical Snapper | Other Snapper | Lutjanidae - undifferentiated | ***61*** | ***29*** | ***165*** | ***111*** | ***226*** | ***115*** | 73% |
| Tuna | Longtail Tuna | *Thunnus orientalis* | ***19*** | ***18*** | *0* | *0* | ***19*** | ***18*** | 0% |
| Tuna | Mackerel Tuna | *Euthynnus affinis* | ***126*** | ***55*** | ***152*** | ***119*** | ***279*** | ***134*** | 55% |
| Tuna | Skipjack Tuna | *Katsuwonus pelamis* | ***367*** | ***189*** | ***70*** | ***67*** | ***437*** | ***212*** | 16% |
| Tuna | Southern Bluefin Tuna | *Thunnus maccoyii* | 1,463 | 531 | 784 | 260 | 2,247 | 679 | 35% |
| Tuna | Yellowfin Tuna | *Thunnus albacares* | *258* | *94* | ***136*** | ***88*** | *394* | *136* | 35% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | 15,288 | 1,510 | 7,683 | 952 | 22,971 | 2,184 | 33% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Tuskfish Wrasse | Bluebarred Parrotfish | *Scarus ghobban spp complex* | ***1,289*** | ***931*** | *1,169* | *454* | ***2,458*** | ***1,036*** | 48% |
| Tuskfish Wrasse | Bluespotted Tuskfish | *Choerodon cauteroma* | ***19*** | ***18*** | ***11*** | ***11*** | ***30*** | ***21*** | 37% |
| Tuskfish Wrasse | Brownspotted Wrasse | *Notolabrus parilus* | 3,493 | 1,103 | 18,969 | 3,070 | 22,462 | 3,827 | 84% |
| Tuskfish Wrasse | Foxfish | *Bodianus frenchii* | 1,201 | 239 | 1,029 | 256 | 2,230 | 390 | 46% |
| Tuskfish Wrasse | Southern Maori Wrasse | *Ophthalmolepis lineolatus* | 805 | 317 | 2,775 | 991 | 3,580 | 1,084 | 78% |
| Tuskfish Wrasse | Western Blue Groper | *Achoerodus gouldii* | *518* | *191* | ***187*** | ***136*** | ***705*** | ***315*** | 27% |
| Tuskfish Wrasse | Western King Wrasse | *Coris auricularis* | 5,154 | 1,042 | 27,192 | 3,391 | 32,346 | 3,839 | 84% |
| Tuskfish Wrasse | Other Parrotfish | Scaridae - undifferentiated | ***172*** | ***126*** | *1,778* | *625* | *1,950* | *641* | 91% |
| Tuskfish Wrasse | Other Tuskfish | *Choerodon spp* | ***37*** | ***36*** | *0* | *0* | ***37*** | ***36*** | 0% |
| Tuskfish Wrasse | Other Wrasse | Labridae - undifferentiated | *0* | *0* | ***2,661*** | ***1,253*** | ***2,661*** | ***1,253*** | 100% |
| Western Blue Devil | Western Blue Devil | *Paraplesiops sinclairi* | ***6*** | ***5*** | *363* | *103* | *369* | *103* | 98% |
| Whiting | King George Whiting | *Sillaginodes punctata* | 19,221 | 3,069 | 4,470 | 1,158 | 23,690 | 3,727 | 19% |
| Whiting | School Whiting | *Sillago schomburgkii, bassensis & vittata* | 179,034 | 24,562 | 60,448 | 17,690 | 239,482 | 36,505 | 25% |
| Whiting | Western Trumpeter Whiting | *Sillago burrus* | ***1,469*** | ***852*** | *2,927* | *1,052* | *4,396* | *1,442* | 67% |
| Whiting | Other Whiting | Sillaginidae - undifferentiated | ***1,362*** | ***820*** | ***515*** | ***313*** | ***1,876*** | ***1,114*** | 27% |
| Wreckfish | Bass Groper | *Polyprion americanus* | ***119*** | ***71*** | ***19*** | ***18*** | ***138*** | ***73*** | 14% |
| Wreckfish | Hapuku | *Polyprion oxygeneios* | ***192*** | ***113*** | ***19*** | ***18*** | ***211*** | ***115*** | 9% |
| Finfish Other | Dory | Zeidae - undifferentiated | ***49*** | ***27*** | *0* | *0* | ***49*** | ***27*** | 0% |
| Finfish Other | Conger Eel | *Conger spp* | *0* | *0* | ***21*** | ***17*** | ***21*** | ***17*** | 100% |
| Finfish Other | Other Eel | Order Anguilliformes - undifferentiated | ***38*** | ***28*** | *279* | *81* | *317* | *86* | 88% |
| Finfish Other | Silver Toadfish | *Lagocephalus sceleratus* | ***25*** | ***24*** | *1,904* | *631* | *1,929* | *632* | 99% |
| Finfish Other | Weeping Toadfish | *Torquigener pleurogramma* | **314** | **302** | 5,251 | 1,274 | 5,565 | 1,309 | 94% |
| Finfish Other | Other Toadfish | Tetraodontidae - undifferentiated | **12** | **11** | 4,137 | 1,338 | 4,148 | 1,338 | 100% |
| Finfish Other | Other Boxfish | Ostraciidae - undifferentiated | ***7*** | ***7*** | *0* | *0* | ***7*** | ***7*** | 0% |
| Finfish Other | Other Boarfish | Pentacerotidae - undifferentiated | ***146*** | ***82*** | *0* | *0* | ***146*** | ***82*** | 0% |

**Table 10.** Estimated annual catch (total, kept and released numbers) and proportion released in the South Coast bioregion during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); values in italics indicate <30 respondents recorded catches of the species).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Abalone | Roe's Abalone | *Haliotis roei* | ***740*** | ***404*** | *0* | *0* | ***740*** | ***404*** | 0% |
| Abalone | Greenlip Abalone | *Haliotis laevigata* | ***121*** | ***101*** | *0* | *0* | ***121*** | ***101*** | 0% |
| Cephalopod | Cuttlefish | *Sepia spp* | *291* | *78* | *91* | *28* | *382* | *84* | 24% |
| Cephalopod | Octopus | *Octopus spp* | ***11*** | ***10*** | *0* | *0* | ***11*** | ***10*** | 0% |
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | 7,407 | 1,834 | 114 | 36 | 7,521 | 1,841 | 2% |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | ***40*** | ***34*** | *0* | *0* | ***40*** | ***34*** | 0% |
| Lobster | Southern Rock Lobster | *Jasus edwardsii* | ***10*** | ***8*** | *0* | *0* | ***10*** | ***8*** | 0% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | ***326*** | ***148*** | ***16*** | ***11*** | ***342*** | ***154*** | 5% |
| Sharks | Bronze Whaler | *Carcharhinus brachyurus* | ***87*** | ***40*** | ***33*** | ***18*** | *119* | *45* | 27% |
| Sharks | Gummy Sharks | *Mustelus antarcticus & M stevensi* | *101* | *39* | ***10*** | ***6*** | *111* | *40* | 9% |
| Sharks | Hammerhead Shark | Family Sphyrnidae | *0* | *0* | ***7*** | ***7*** | ***7*** | ***7*** | 100% |
| Sharks | Port Jackson Shark | *Heterodontus portusjacksoni* | ***3*** | ***3*** | ***272*** | ***207*** | ***275*** | ***207*** | 99% |
| Sharks | Whiskery Shark | *Furgaleus macki* | ***24*** | ***16*** | *0* | *0* | ***24*** | ***16*** | 0% |
| Sharks | Wobbegong | Family Orectolobidae | ***6*** | ***5*** | ***24*** | ***16*** | ***29*** | ***16*** | 81% |
| Sharks | Other Whaler | Carcharhinidae - undifferentiated | ***19*** | ***18*** | ***15*** | ***13*** | ***33*** | ***22*** | 44% |
| Sharks | Other Shark | Sharks - undifferentiated | ***10*** | ***8*** | ***350*** | ***196*** | ***360*** | ***196*** | 97% |
| Rays | Other Rays Skates | Rays - undifferentiated | ***11*** | ***10*** | ***67*** | ***31*** | ***79*** | ***32*** | 86% |
| Billfish | Blue Marlin | *Makaira nigricans* | ***15*** | ***13*** | *0* | *0* | ***15*** | ***13*** | 0% |
| Bonito | Bonito | *Sarda spp* | ***31*** | ***15*** | *0* | *0* | ***31*** | ***15*** | 0% |
| Bream | Black Bream | *Acanthopagrus butcheri* | 4,137 | 1,246 | 14,300 | 3,965 | 18,437 | 4,992 | 78% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 4,009 | 887 | 6,219 | 1,476 | 10,228 | 1,888 | 61% |
| Bream | Tarwhine | *Rhabdosargus sarba* | ***82*** | ***54*** | ***325*** | ***269*** | ***407*** | ***307*** | 80% |
| Bream | Other Bream | Sparidae - undifferentiated | ***11*** | ***10*** | *0* | *0* | ***11*** | ***10*** | 0% |
| Catfish | Estuary Cobbler | *Cnidoglanis macrocephalus* | ***46*** | ***35*** | *0* | *0* | ***46*** | ***35*** | 0% |
| Catfish | Other Catfish | Ariidae - undifferentiated | ***12*** | ***12*** | *0* | *0* | ***12*** | ***12*** | 0% |
| Cod | Breaksea Cod | *Epinephelides armatus* | 6,521 | 847 | 2,865 | 558 | 9,385 | 1,278 | 31% |
| Cod | Eightbar Grouper | *Hyporthodus octofasciatus* | ***22*** | ***20*** | *0* | *0* | ***22*** | ***20*** | 0% |
| Cod | Harlequin Fish | *Othos dentex* | 1,010 | 221 | **43** | **20** | 1,053 | 228 | 4% |
| Cod | Temperate Basses & Rockcods | Epinephelidae - undifferentiated | ***38*** | ***27*** | ***238*** | ***117*** | ***275*** | ***126*** | 86% |
| Emperor | Other Emperor | Lethrinidae - undifferentiated | ***113*** | ***69*** | ***77*** | ***75*** | ***191*** | ***141*** | 41% |
| Flathead | Southern Bluespotted Flathead | *Platycephalus speculator* | 793 | 221 | **2,324** | **1,551** | **3,117** | **1,587** | 75% |
| Flounder | Smalltooth Flounder | *Pseudorhombus jenynsii* | ***21*** | ***14*** | ***22*** | ***21*** | ***43*** | ***32*** | 51% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Garfish | Southern Garfish | *Hyporhamphus melanochir* | ***326*** | ***143*** | ***112*** | ***78*** | *438* | *174* | 26% |
| Giant Perch | Sand Bass | *Psammoperca waigiensis* | ***5*** | ***4*** | *0* | *0* | ***5*** | ***4*** | 0% |
| Goatfish | Bluespotted Goatfish | *Upeneichthys vlamingii* | ***114*** | ***77*** | *611* | *209* | *725* | *224* | 84% |
| Grunter | Sea Trumpeter | *Pelsartia humeralis* | *0* | *0* | *2,098* | *793* | *2,098* | *793* | 100% |
| Grunter | Western Striped Grunter | *Pelates octolineatus* | *0* | *0* | ***143*** | ***86*** | ***143*** | ***86*** | 100% |
| Grunter | Other Trumpeter | *Latridopsis spp* | *0* | *0* | ***247*** | ***128*** | ***247*** | ***128*** | 100% |
| Gurnard | Bighead Gurnard Perch | *Neosebastes pandus* | ***27*** | ***19*** | ***783*** | ***617*** | ***810*** | ***617*** | 97% |
| Gurnard | Gurnard | Neosebastidae - undifferentiated | ***15*** | ***13*** | ***158*** | ***80*** | ***173*** | ***82*** | 92% |
| Jewfish | Mulloway | *Argyrosomus japonicus* | *0* | *0* | ***17*** | ***17*** | ***17*** | ***17*** | 100% |
| Leatherjacket | Horseshoe Leatherjacket | *Meuschenia hippocrepis* | ***129*** | ***62*** | ***866*** | ***516*** | ***995*** | ***520*** | 87% |
| Leatherjacket | Sixspine Leatherjacket | *Meuschenia freycineti* | ***206*** | ***137*** | ***22*** | ***20*** | ***228*** | ***139*** | 10% |
| Leatherjacket | Leatherjacket | Monacanthidae - undifferentiated | 118 | 44 | 1,857 | 616 | 1,975 | 620 | 94% |
| Mackerel | Blue Mackerel | *Scomber australasicus* | ***540*** | ***271*** | ***79*** | ***62*** | ***618*** | ***278*** | 13% |
| Mackerel | Other Mackerel & Tuna | Scombridae - undifferentiated | ***699*** | ***615*** | ***34*** | ***23*** | ***733*** | ***615*** | 5% |
| Morwong | Blue Morwong | *Nemadactylus valenciennesi* | 3,095 | 461 | 568 | 172 | 3,663 | 554 | 16% |
| Mullet | Sea Mullet | *Mugil cephalus* | ***540*** | ***492*** | *0* | *0* | ***540*** | ***492*** | 0% |
| Mullet | Yelloweye Mullet | *Aldrichetta forsteri* | ***487*** | ***469*** | ***19*** | ***18*** | ***506*** | ***470*** | 4% |
| Mullet | Other Mullet | Mugilidae - undifferentiated | *0* | *0* | ***87*** | ***84*** | ***87*** | ***84*** | 100% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 2,281 | 384 | 2,437 | 693 | 4,718 | 1,013 | 52% |
| Pike | Snook | *Sphyraena novaehollandiae* | *207* | *67* | ***599*** | ***513*** | ***806*** | ***556*** | 74% |
| Pike | Yellowtail Barracuda | *Sphyraena obtusata* | ***144*** | ***128*** | ***21*** | ***13*** | ***165*** | ***129*** | 13% |
| Pike | Other Pike | Sphyraenidae - undifferentiated | ***51*** | ***41*** | *0* | *0* | ***51*** | ***41*** | 0% |
| Redfish | Bight Redfish | *Centroberyx gerrardi* | 11,409 | 1,677 | 4,460 | 1,129 | 15,869 | 2,534 | 28% |
| Redfish | Swallowtail | *Centroberyx lineatus* | 2,364 | 433 | 1,622 | 342 | 3,986 | 688 | 41% |
| Salmon Herring | Australian Herring | *Arripis georgianus* | 12,245 | 2,004 | 4,672 | 1,083 | 16,917 | 2,832 | 28% |
| Salmon Herring | Western Australian Salmon | *Arripis truttaceus* | ***510*** | ***207*** | ***1,238*** | ***568*** | ***1,748*** | ***705*** | 71% |
| Sergeant Baker | Sergeant Baker | *Aulopus purpurissatus* | 523 | 126 | 1,669 | 336 | 2,192 | 421 | 76% |
| Sweep | Banded Sweep | *Scorpis georgiana* | ***335*** | ***202*** | ***260*** | ***111*** | ***595*** | ***238*** | 44% |
| Sweep | Sea Sweep | *Scorpis aequipinnis* | 1,959 | 415 | 1,224 | 274 | 3,184 | 565 | 38% |
| Sweep | Silver Drummer | *Kyphosus spp complex* | ***13*** | ***8*** | ***25*** | ***15*** | ***38*** | ***17*** | 66% |
| Tailor | Tailor | *Pomatomus saltatrix* | ***164*** | ***151*** | ***34*** | ***23*** | ***198*** | ***153*** | 17% |
| Trevally | Samsonfish | *Seriola hippos* | 433 | 96 | **776** | **325** | 1,209 | 349 | 64% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | 2,193 | 490 | 2,011 | 485 | 4,204 | 880 | 48% |
| Trevally | Yellowtail Kingfish | *Seriola lalandi* | *278* | *97* | ***355*** | ***196*** | *633* | *232* | 56% |
| Trevally | Yellowtail Scad | *Trachurus novaezelandiae* | ***780*** | ***508*** | ***855*** | ***538*** | ***1,635*** | ***739*** | 52% |

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Trevally | Other Trevally | Carangidae - undifferentiated | *520* | *197* | ***70*** | ***47*** | ***590*** | ***240*** | 12% |
| Tropical Snapper | Other Snapper | Lutjanidae - undifferentiated | ***84*** | ***71*** | ***22*** | ***20*** | ***107*** | ***74*** | 21% |
| Tuna | Skipjack Tuna | *Katsuwonus pelamis* | ***11*** | ***10*** | *0* | *0* | ***11*** | ***10*** | 0% |
| Tuna | Southern Bluefin Tuna | *Thunnus maccoyii* | *222* | *70* | ***82*** | ***46*** | *304* | *94* | 27% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | ***16*** | ***11*** | *0* | *0* | ***16*** | ***11*** | 0% |
| Tuskfish Wrasse | Brownspotted Wrasse | *Notolabrus parilus* | 301 | 111 | 2,787 | 565 | 3,088 | 612 | 90% |
| Tuskfish Wrasse | Foxfish | *Bodianus frenchii* | *253* | *77* | *93* | *31* | *346* | *83* | 27% |
| Tuskfish Wrasse | Southern Maori Wrasse | *Ophthalmolepis lineolatus* | ***15*** | ***10*** | *829* | *328* | *844* | *331* | 98% |
| Tuskfish Wrasse | Western Blue Groper | *Achoerodus gouldii* | *185* | *63* | ***22*** | ***15*** | *208* | *64* | 11% |
| Tuskfish Wrasse | Western King Wrasse | *Coris auricularis* | 191 | 66 | 2,732 | 690 | 2,923 | 716 | 93% |
| Tuskfish Wrasse | Other Parrotfish | Scaridae - undifferentiated | ***171*** | ***135*** | ***313*** | ***174*** | ***484*** | ***262*** | 65% |
| Tuskfish Wrasse | Other Wrasse | Labridae - undifferentiated | ***11*** | ***10*** | ***559*** | ***251*** | ***570*** | ***251*** | 98% |
| Western Blue Devil | Western Blue Devil | *Paraplesiops sinclairi* | ***29*** | ***13*** | *209* | *80* | *238* | *81* | 88% |
| Whiting | King George Whiting | *Sillaginodes punctata* | 23,018 | 6,076 | 5,941 | 1,348 | 28,959 | 6,937 | 21% |
| Whiting | School Whiting | *Sillago schomburgkii, bassensis & vittata* | **15,374** | **7,957** | 2,100 | 737 | **17,475** | **8,124** | 12% |
| Whiting | Other Whiting | Sillaginidae - undifferentiated | *0* | *0* | ***113*** | ***55*** | ***113*** | ***55*** | 100% |
| Wreckfish | Bass Groper | *Polyprion americanus* | ***2*** | ***2*** | *0* | *0* | ***2*** | ***2*** | 0% |
| Wreckfish | Hapuku | *Polyprion oxygeneios* | ***395*** | ***158*** | ***7*** | ***7*** | ***403*** | ***161*** | 2% |
| Finfish Other | Butterfish | Stromateidae - undifferentiated | *0* | *0* | ***34*** | ***23*** | ***34*** | ***23*** | 100% |
| Finfish Other | Dory | Zeidae - undifferentiated | ***9*** | ***9*** | *0* | *0* | ***9*** | ***9*** | 0% |
| Finfish Other | Conger Eel | *Conger spp* | *0* | *0* | ***7*** | ***7*** | ***7*** | ***7*** | 100% |
| Finfish Other | Other Eel | Order Anguilliformes - undifferentiated | *0* | *0* | ***2*** | ***2*** | ***2*** | ***2*** | 100% |
| Finfish Other | Weeping Toadfish | *Torquigener pleurogramma* | *0* | *0* | ***45*** | ***41*** | ***45*** | ***41*** | 100% |
| Finfish Other | Other Boarfish | Pentacerotidae - undifferentiated | ***10*** | ***8*** | *0* | *0* | ***10*** | ***8*** | 0% |

# 8 Estimates of Catch by Zones within Bioregions

This section presents estimates of boat-based recreational catch for the 12-months from September 2017 to August 2018. Estimates are presented for annual catch (total, kept and released, by number) and proportions released (% released) for zones in each bioregion (Figure 102): Kimberley (Table 11) and Pilbara (Table 12) zones in the North Coast; Ningaloo (Table 13) and Carnarvon/Shark Bay (Table 14) zones in the Gascoyne Coast; Mid West (Table 15), Metro (Table 16) and South West (Table 17) zones in the West Coast; and the Albany (Table 18) and Esperance (Table 19) zones in the South Coast.

## 8.1 Kimberley

A total of 115 species/taxa were reported in the Kimberley zone in 2017/18, which represented 2.6% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 11. The most common finfish species were Stripey Snapper (11% of the zone total catch), Grass Emperor (10%), Barramundi (7%), Saddletail Snapper (5%), Blackspotted Rockcod (4%), Golden Snapper (4%), Blue Threadfin (3%), Mangrove Jack (3%), Crimson Snapper (3%), Spanish Mackerel (2%), Golden Trevally (2%), Giant Sea Catfish (2%), Blackspot Tuskfish (2%), Coral Trout (2%), Goldspotted Rockcod (2%), Red Emperor (2%), King Threadfin (2%) and Blue Tuskfish (2%). The most common invertebrate species were Mud Crab (6%) and Blue Swimmer Crab (2%). These 20 species accounted for 75% of the total catch (by numbers) in the Kimberley zone in 2017/18.

## 8.2 Pilbara

A total of 116 species/taxa were reported in the Pilbara zone in 2017/18, which represented 3.3% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 12. The most common finfish species were Red Emperor (9% of the zone total catch), Grass Emperor (8%), Coral Trout (7%), Rankin Cod (6%), Stripey Snapper (5%), Spangled Emperor (5%), Spanish Mackerel (4%), 0 Saddletail Snapper (3%), Blackspot Tuskfish (2%), Golden Trevally (2%), Goldspotted Rockcod (2%) and Chinaman Rockcod (2%). The most comMon invertebrate species were Blue Swimmer Crab (10%) and Squid (3%). These 14 species accounted for 70% of the total catch (by numbers) in the Pilbara zone in 2017/18.

## 8.3 Ningaloo

A total of 120 species/taxa were reported in the Ningaloo zone in 2017/18, which represented 2.5% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 13. The most common finfish species were Chinaman Rockcod (16% of the zone total catch), Spangled Emperor (9%), Redthroat Emperor (7%), Grass Emperor (7%), Western Yellowfin Bream (4%), Goldband Snapper (4%), Spanish Mackerel (3%), Golden Trevally (3%), Red Emperor (3%), Coral Trout (3%), Stripey Snapper (2%), Giant Trevally (2%) and Goldspotted Rockcod (2%). The most common invertebrate species

were Squid (6%) and Blue Swimmer Crab (3%). These 15 species accounted for 72% of the total catch (by numbers) in the Ningaloo zone in 2017/18.

## 8.4 Carnarvon/Shark Bay

A total of 124 species/taxa were reported in the Carnarvon/Shark Bay zone in 2017/18, which represented 5.6% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 14. The most common finfish species were Pink Snapper (27% of the zone total catch), Grass Emperor (11%), Redthroat Emperor (5%), Spangled Emperor (4%), Chinaman Rockcod (3%), Red Emperor (2%), Rankin Cod (2%) and Baldchin Groper (2%). The most common invertebrate species were Blue Swimmer Crab (20%) and Squid (5%). These 10 species accounted for 79% of the total catch (by numbers) in the Carnarvon/Shark Bay zone in 2017/18.

## 8.5 Mid West

A total of 118 species/taxa were reported in the Mid West zone (including the Kalbarri zone) in 2017/18, which represented 9.6% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 15. The most common finfish species were Baldchin Groper (5% of the zone total catch), West Australian Dhufish (5%), Pink Snapper (4%), Australian Herring (4%), Silver Trevally (3%), Redthroat Emperor (3%) and School Whiting (2%). The most common invertebrate species was Western Rock Lobster (58%) and Blue Swimmer Crab (2%). These nine species accounted for 86% of the total catch (by numbers) in the Mid West zone in 2017/18.

## 8.6 Metropolitan

A total of 144 species/taxa were reported in the Metropolitan zone in 2017/18, which represented 54.5% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 16. The most common finfish species were School Whiting (12% of the zone total catch), Australian Herring (5%), Pink Snapper (2%), Silver Trevally (2%) and West Australian Dhufish (2%). The most common invertebrate species were Western Rock Lobster (31%), Blue Swimmer Crab (29%) and Squid (3%). These eight species accounted for 86% of the total catch (by numbers) in the Metropolitan zone in 2017/18.

## 8.7 South West

A total of 100 species/taxa were reported in the South West zone in 2017/18, which represented 15.4% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 17. The most common finfish species were School Whiting (11% of the zone total catch), West Australian Dhufish (6%), Australian Herring (5%), Pink Snapper (4%), King George Whiting (2%), Black Bream (2%), Silver Trevally (2%) and Western King Wrasse (2%). The most common invertebrate species were Blue Swimmer Crab (38%), Western Rock Lobster (14%) and Squid (3%). These 11 species accounted for 89% of the total catch (by numbers) in the South West zone in 2017/18.

## 8.8 Albany

A total of 83 species/taxa were reported in the Albany zone in 2017/18, which represented 5.4% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 18. The most common finfish species were King George Whiting (19% of the zone total catch), School Whiting (10%), Black Bream (10%), Australian Herring (9%), Pink Snapper (7%), Bight Redfish (5%), Breaksea Cod (4%), West Australian Dhufish (3%), Silver Trevally (2%), Southern Bluespotted Flathead (2%), Swallowtail (2%), Sea Sweep (2%), Blue Morwong (2%) and Western King Wrasse (2%). The most common invertebrate species was Squid (4%). These 15 species accounted for 83% of the total catch (by numbers) in the Albany zone in 2017/18.

## 8.9 Esperance

A total of 66 species/taxa were reported in the Esperance zone in 2017/18, which represented 1.0% of the statewide total catch (by numbers). Estimates for species where the sample size and relative standard error was acceptable are given in Table 19. The most common finfish species were Bight Redfish (27% of the zone total catch), Australian Herring (12%), Breaksea Cod (10%), Black Bream (9%), School Whiting (5%), Swallowtail (5%), Blue Morwong (4%), Brownspotted Wrasse (4%), Squid (3%), Western King Wrasse (2%), Sea Sweep (2%), Silver Trevally (2%) and Sergeant Baker (2%). The most common invertebrate species was Squid (3%). These 13 species accounted for 85% of the total catch (by numbers) in the Esperance zone in 2017/18.

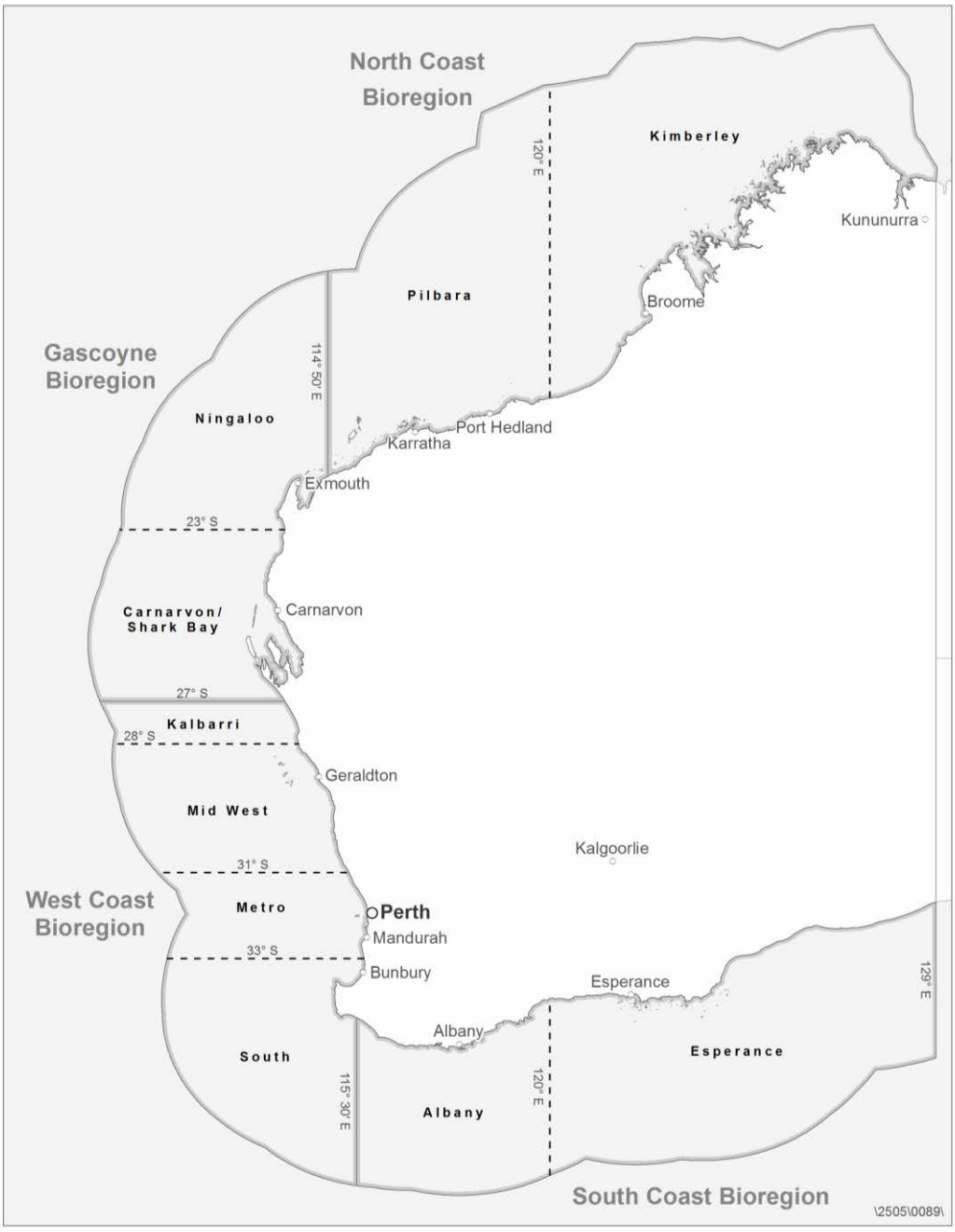


**Figure 102.** Map of reporting areas in Western Australia, including four bioregions (solid lines) and ten zones within bioregions (dotted lines).

**Table 11.** Estimated annual catch (total, kept and released numbers) and proportion released in the Kimberley zone of the North **Coast** during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Catfish | Giant Sea Catfish | *Arius thalassinus* | **15** | **9** | 1,727 | 392 | 1,741 | 392 | 99% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 689 | 185 | 775 | 303 | 1,464 | 397 | 53% |
| Emperor | Grass Emperor | *Lethrinus laticaudis* | 3,384 | 1,156 | 4,154 | 1,509 | 7,539 | 2,435 | 55% |
| Giant Perch | Barramundi | *Lates calcarifer* | 1,460 | 482 | 3,794 | 896 | 5,253 | 1,178 | 72% |
| Mackerel | Spanish Mackerel | *Scomberomorus commerson* | 671 | 185 | **1,135** | **589** | **1,805** | **739** | 63% |
| Threadfin | Blue Threadfin | *Eleutheronema tetradactylum* | 1,201 | 306 | 938 | 307 | 2,139 | 481 | 44% |
| Threadfin | King Threadfin | *Polydactylus macrochir* | 590 | 123 | 562 | 177 | 1,151 | 246 | 49% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | 2,825 | 707 | 5,179 | 1,295 | 8,004 | 1,905 | 65% |

**Table 12.** Estimated annual catch (total, kept and released numbers) and proportion released in the Pilbara zone of the North Coast during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cod | Chinaman Rockcod | *Epinephelus rivulatus* | 275 | 88 | 1,162 | 440 | 1,437 | 451 | 81% |
| Cod | Goldspotted Rockcod | *Epinephelus coioides* | 286 | 100 | 1,439 | 412 | 1,725 | 432 | 83% |
| Cod | Rankin Cod | *Epinephelus multinotatus* | 3,516 | 874 | 1,902 | 547 | 5,418 | 1,188 | 35% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 3,965 | 618 | 2,079 | 396 | 6,045 | 842 | 34% |
| Emperor | Grass Emperor | *Lethrinus laticaudis* | 2,388 | 674 | **5,250** | **2,164** | 7,638 | 2,698 | 69% |
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 1,336 | 291 | 3,641 | 829 | 4,977 | 989 | 73% |
| Mackerel | Spanish Mackerel | *Scomberomorus commerson* | 1,821 | 331 | 1,940 | 573 | 3,761 | 800 | 52% |
| Trevally | Golden Trevally | *Gnathanodon speciosus* | 260 | 85 | 1,669 | 569 | 1,929 | 612 | 87% |
| Tropical Snapper | Red Emperor | *Lutjanus sebae* | 3,666 | 749 | 5,019 | 974 | 8,685 | 1,567 | 58% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | 717 | 188 | 4,302 | 1,360 | 5,019 | 1,452 | 86% |
| Tuskfish Wrasse | Blackspot Tuskfish | *Choerodon schoenleinii* | 1,401 | 427 | 626 | 199 | 2,027 | 484 | 31% |

**Table 13.** Estimated annual catch (total, kept and released numbers) and proportion released in the Ningaloo zone of the Gascoyne Coast during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cod | Chinaman Rockcod | *Epinephelus rivulatus* | 6,204 | 1,924 | 4,970 | 1,260 | 11,175 | 2,744 | 44% |
| Cod | Rankin Cod | *Epinephelus multinotatus* | 589 | 134 | 281 | 87 | 870 | 198 | 32% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 1,372 | 315 | 558 | 190 | 1,929 | 443 | 29% |
| Emperor | Grass Emperor | *Lethrinus laticaudis* | 2,458 | 734 | 2,372 | 806 | 4,830 | 1,386 | 49% |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | **2,411** | **993** | 2,472 | 935 | 4,883 | 1,749 | 51% |
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 2,989 | 483 | 3,181 | 734 | 6,170 | 1,048 | 52% |
| King Snapper | Goldband Snapper | *Pristipomoides multidens* | **2,015** | **870** | **585** | **278** | **2,600** | **1,124** | 22% |
| Mackerel | Spanish Mackerel | *Scomberomorus commerson* | 1,504 | 351 | 996 | 268 | 2,500 | 543 | 40% |
| Tropical Snapper | Red Emperor | *Lutjanus sebae* | 791 | 174 | 1,262 | 477 | 2,053 | 552 | 61% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | 886 | 291 | 677 | 188 | 1,562 | 376 | 43% |

**Table 14.** Estimated annual catch (total, kept and released numbers) and proportion released in the Carnarvon/Shark Bay zone of the Gascoyne Coast during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | **6,790** | **3,329** | **288** | **199** | **7,078** | **3,345** | 4% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | **21,140** | **9,571** | **9,531** | **3,874** | **30,670** | **13,348** | 31% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 7,750 | 1,358 | 34,707 | 11,956 | 42,457 | 12,972 | 82% |
| Cod | Chinaman Rockcod | *Epinephelus rivulatus* | **1,411** | **571** | 2,985 | 1,164 | 4,396 | 1,499 | 68% |
| Cod | Goldspotted Rockcod | *Epinephelus coioides* | 538 | 139 | **858** | **356** | 1,396 | 438 | 61% |
| Cod | Rankin Cod | *Epinephelus multinotatus* | 2,183 | 495 | **859** | **401** | 3,042 | 665 | 28% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 431 | 108 | **559** | **344** | 990 | 361 | 56% |
| Emperor | Grass Emperor | *Lethrinus laticaudis* | 5,496 | 1,630 | 11,493 | 3,556 | 16,990 | 4,739 | 68% |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | 3,115 | 661 | 5,016 | 1,558 | 8,130 | 1,926 | 62% |
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 3,129 | 877 | 3,175 | 1,022 | 6,304 | 1,797 | 50% |
| Tropical Snapper | Red Emperor | *Lutjanus sebae* | 2,322 | 629 | 1,090 | 422 | 3,413 | 833 | 32% |
| Tropical Snapper | Stripey Snapper | *Lutjanus carponotatus* | 645 | 149 | 859 | 242 | 1,504 | 301 | 57% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | 1,278 | 309 | **1,157** | **565** | 2,435 | 833 | 48% |

**Table 15.** Estimated annual catch (total, kept and released numbers) and proportion released in the Mid West zone of the West Coast during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Lobster | Western Rock Lobster | *Panulirus cygnus* | 90,558 | 17,809 | 66,786 | 14,315 | 157,345 | 30,790 | 42% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 4,876 | 712 | 7,219 | 1,364 | 12,096 | 1,836 | 60% |
| Cod | Breaksea Cod | *Epinephelides armatus* | 1,149 | 197 | 1,048 | 222 | 2,198 | 353 | 48% |
| Coral Trout | Coral Trout | *Plectropomus maculatus & P leopardus* | 1,640 | 433 | **1,774** | **724** | 3,413 | 1,130 | 52% |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | 1,916 | 448 | 5,294 | 1,298 | 7,210 | 1,601 | 73% |
| Emperor | Spangled Emperor | *Lethrinus nebulosus* | 605 | 152 | 1,699 | 600 | 2,304 | 665 | 74% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 7,202 | 1,012 | 6,796 | 1,599 | 13,997 | 2,387 | 49% |
| Trevally | Samsonfish | *Seriola hippos* | 322 | 84 | 1,528 | 459 | 1,850 | 487 | 83% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | **3,424** | **2,076** | **3,843** | **2,677** | **7,267** | **4,721** | 53% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | 9,762 | 1,278 | 4,966 | 791 | 14,728 | 1,821 | 34% |
| Tuskfish Wrasse | Western King Wrasse | *Coris auricularis* | **573** | **278** | 1,476 | 389 | 2,049 | 496 | 72% |

**Table 16.** Estimated annual catch (total, kept and released numbers) and proportion released in the Metropolitan zone of the West Coast during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cephalopod | Cuttlefish | *Sepia spp* | 1,776 | 358 | 814 | 212 | 2,590 | 442 | 31% |
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | 48,497 | 6,345 | 1,578 | 484 | 50,074 | 6,632 | 3% |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | 314,852 | 31,874 | 160,771 | 27,986 | 475,623 | 54,172 | 34% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | 194,339 | 16,561 | 255,638 | 24,928 | 449,977 | 39,331 | 57% |
| Sharks | Gummy Sharks | *Mustelus antarcticus & M stevensi* | 473 | 142 | 510 | 126 | 984 | 197 | 52% |
| Rays | Other Rays Skates | Rays - undifferentiated | **35** | **34** | 1,588 | 323 | 1,623 | 325 | 98% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 7,760 | 901 | 23,837 | 2,512 | 31,598 | 3,065 | 75% |
| Cod | Breaksea Cod | *Epinephelides armatus* | 5,867 | 737 | 4,849 | 683 | 10,716 | 1,213 | 45% |
| Cod | Harlequin Fish | *Othos dentex* | 860 | 145 | **146** | **63** | 1,006 | 160 | 14% |
| Flathead | Southern Bluespotted Flathead | *Platycephalus speculator* | 2,415 | 750 | 8,298 | 1,682 | 10,714 | 2,096 | 77% |
| Flathead | Yellowtail Flathead | *Platycephalus westraliae* | 580 | 175 | 7,134 | 1,695 | 7,714 | 1,748 | 92% |
| Gurnard | Gurnard | Neosebastidae - undifferentiated | **87** | **69** | 928 | 193 | 1,016 | 206 | 91% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 10,928 | 1,061 | 13,382 | 1,426 | 24,310 | 2,315 | 55% |
| Salmon Herring | Australian Herring | *Arripis georgianus* | 58,322 | 8,824 | 13,567 | 2,220 | 71,890 | 9,924 | 19% |
| Sergeant Baker | Sergeant Baker | *Aulopus purpurissatus* | 785 | 258 | 2,414 | 469 | 3,198 | 589 | 75% |
| Tailor | Tailor | *Pomatomus saltatrix* | 4,361 | 1,323 | 6,809 | 2,692 | 11,170 | 3,466 | 61% |
| Threadfin Bream | Western Butterfish | *Pentapodus vitta* | 2,435 | 857 | 12,146 | 2,957 | 14,581 | 3,226 | 83% |
| Trevally | Samsonfish | *Seriola hippos* | 628 | 161 | 2,487 | 557 | 3,116 | 611 | 80% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | 14,908 | 1,850 | 11,485 | 2,607 | 26,394 | 3,953 | 44% |
| Tuskfish Wrasse | Baldchin Groper | *Choerodon rubescens* | 5,079 | 665 | 2,676 | 508 | 7,755 | 1,056 | 35% |
| Tuskfish Wrasse | Brownspotted Wrasse | *Notolabrus parilus* | **2,551** | **1,041** | 14,502 | 2,889 | 17,052 | 3,599 | 85% |
| Tuskfish Wrasse | Foxfish | *Bodianus frenchii* | 785 | 199 | 796 | 238 | 1,581 | 343 | 50% |
| Tuskfish Wrasse | Western King Wrasse | *Coris auricularis* | 3,651 | 884 | 19,346 | 2,968 | 22,997 | 3,253 | 84% |
| Whiting | King George Whiting | *Sillaginodes punctata* | 10,757 | 2,452 | **2,283** | **941** | 13,040 | 2,976 | 18% |
| Whiting | School Whiting | *Sillago schomburgkii, bassensis & vittata* | 136,055 | 18,273 | 50,678 | 17,157 | 186,733 | 30,242 | 27% |

**Table 17.** Estimated annual catch (total, kept and released numbers) and proportion released in the South West zone of the West Coast during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cephalopod | Cuttlefish | *Sepia spp* | 809 | 218 | 271 | 87 | 1,080 | 238 | 25% |
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | 13,817 | 2,244 | **702** | **375** | 14,519 | 2,361 | 5% |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | 48,064 | 10,392 | 12,710 | 3,716 | 60,774 | 12,628 | 21% |
| Crab | Blue Swimmer Crab | *Portunus armatus* | 53,563 | 12,247 | 113,165 | 25,255 | 166,727 | 36,621 | 68% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 4,981 | 800 | 12,772 | 2,521 | 17,753 | 3,190 | 72% |
| Cod | Breaksea Cod | *Epinephelides armatus* | 2,112 | 406 | 713 | 169 | 2,825 | 518 | 25% |
| Flathead | Southern Bluespotted Flathead | *Platycephalus speculator* | 391 | 103 | 2,415 | 640 | 2,806 | 659 | 86% |
| Gurnard | Gurnard | Neosebastidae - undifferentiated | **137** | **94** | 1,054 | 291 | 1,191 | 306 | 89% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 7,498 | 1,041 | 17,263 | 3,662 | 24,761 | 4,460 | 70% |
| Salmon Herring | Australian Herring | *Arripis georgianus* | 17,137 | 3,490 | 4,067 | 1,084 | 21,205 | 3,971 | 19% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | 4,546 | 1,148 | 2,817 | 730 | 7,363 | 1,673 | 38% |
| Tuskfish Wrasse | Western King Wrasse | *Coris auricularis* | **929** | **462** | 6,370 | 1,479 | 7,299 | 1,867 | 87% |
| Whiting | King George Whiting | *Sillaginodes punctata* | 8,324 | 1,831 | 2,117 | 669 | 10,441 | 2,226 | 20% |
| Whiting | School Whiting | *Sillago schomburgkii, bassensis & vittata* | **40,166** | **16,163** | **8,060** | **4,087** | **48,226** | **20,040** | 17% |

**Table 18.** Estimated annual catch (total, kept and released numbers) and proportion released in the Albany zone of the South Coast during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cephalopod | Squid | Order Teuthoidea - undifferentiated | 6,607 | 1,813 | **71** | **29** | 6,678 | 1,820 | 1% |
| Bream | Black Bream | *Acanthopagrus butcheri* | 3,409 | 1,100 | 12,368 | 3,569 | 15,777 | 4,449 | 78% |
| Bream | Pink Snapper | *Chrysophrys auratus* | 3,848 | 883 | 6,160 | 1,474 | 10,008 | 1,883 | 62% |
| Cod | Breaksea Cod | *Epinephelides armatus* | 4,464 | 705 | 1,939 | 493 | 6,403 | 1,070 | 30% |
| Morwong | Blue Morwong | *Nemadactylus valenciennesi* | 2,194 | 361 | 432 | 155 | 2,626 | 425 | 16% |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 2,233 | 382 | 2,437 | 692 | 4,670 | 1,010 | 52% |
| Redfish | Bight Redfish | *Centroberyx gerrardi* | 7,045 | 1,325 | 1,075 | 261 | 8,120 | 1,455 | 13% |
| Redfish | Swallowtail | *Centroberyx lineatus* | 1,698 | 387 | 965 | 268 | 2,664 | 594 | 36% |
| Salmon Herring | Australian Herring | *Arripis georgianus* | 10,048 | 1,928 | 3,434 | 986 | 13,481 | 2,678 | 25% |
| Sergeant Baker | Sergeant Baker | *Aulopus purpurissatus* | 426 | 123 | 1,279 | 318 | 1,705 | 401 | 75% |
| Sweep | Sea Sweep | *Scorpis aequipinnis* | 1,804 | 411 | 833 | 238 | 2,637 | 538 | 32% |
| Trevally | Silver Trevally | *Pseudocaranx georgianus spp complex* | 1,864 | 481 | 1,839 | 475 | 3,703 | 863 | 50% |
| Whiting | King George Whiting | *Sillaginodes punctata* | 22,835 | 6,071 | 5,797 | 1,342 | 28,632 | 6,930 | 20% |

**Table 19.** Estimated annual catch (total, kept and released numbers) and proportion released in the Esperance zone of the South Coast during 2017/18 by RBFL holders aged five years or older (se is standard error; values in bold indicate relative standard error >40% (i.e. se >40% of estimate); only species where >30 respondents recorded catches of the species are reported).

| Reporting Group | Common Name | Scientific Name | Kept | se | Released | se | Total | se | % Rel |
|---|---|---|---|---|---|---|---|---|---|
| Cod | Breaksea Cod | *Epinephelides armatus* | 2,056 | 461 | 926 | 233 | 2,982 | 680 | 31% |
| Morwong | Blue Morwong | *Nemadactylus valenciennesi* | 901 | 282 | **137** | **74** | 1,037 | 351 | 13% |
| Redfish | Bight Redfish | *Centroberyx gerrardi* | 4,364 | 1,006 | 3,386 | 1,077 | 7,749 | 2,031 | 44% |
| Salmon Herring | Australian Herring | *Arripis georgianus* | 2,197 | 538 | 1,238 | 443 | 3,435 | 907 | 36% |

# 9 Harvest Weights

This section presents estimates of harvest (kept catch, by weight) for the 12-months from September 2017 to August 2018 for the species assemblages (or suites) within each bioregion and habitat aligned with fisheries management in Western Australia. Estimates are provided for the: top 10 nearshore and estuarine scalefish species (or species groupings) in each bioregion (Table 20); dominant 15 scalefish species for the West Coast Demersal Scalefish Resource (Table 22); top 10 demersal scalefish species in the North Coast, Gascoyne Coast and South Coast (Table 21); top 10 pelagic scalefish species in the North Coast (Table 23); and crab resources in each Bioregion (Table 24).

Estimates of boat-based recreational catch (by number) are converted to estimates of harvest (by weight) according to average weights for key species, obtained from Boat Ramp Surveys (Appendix 1) or Tour Operator Returns (Charter Logbooks). Estimated average weights are influenced by sample design, management, and biological/environmental factors, therefore, sources of information and assumptions associated with estimated average weights can introduce bias for some species, and estimated average weights may be refined and adjusted over time.

The estimates of harvest from boat-based recreational fishing summarised in this section do not include catches from charter-boat recreational fishing. Estimates of harvest for nearshore and estuarine species will be underestimated, particularly those species with high proportions of shore-based recreational fishing effort. An overview of the information required for stock status reporting of major recreational fisheries, based on estimates of harvest and 95% confidence intervals during 2017/18, is provided in Table 25.

## 9.1 Nearshore and Estuarine Resources

The top 10 nearshore and estuarine species (or species groupings) in 2017/18 represented: 87% of the total catch (kept by numbers) in the North Coast, 94% in the Gascoyne Coast, 95% in the West Coast and 95% in the South Coast (Table 25). Estimated recreational harvest ranges (as 95% confidence intervals, CI) for the top 10 nearshore and estuarine species in 2017/18 compared with estimates from previous statewide surveys indicated the estimated harvest range:

- in the North Coast were steady at 20 t (95% CI 15–26 t) in 2017/18 compared with 21 t (95% CI 15–28) in 2015/16, 14 t (95% CI 10–18) in 2013/14 and 19 t (95% CI 13–25) in 2011/12 (as determined by confidence intervals not overlapping)
- in the Gascoyne Coast were steady at 11 t (95% CI 7–15 t) in 2017/18 compared with 6 t (95% CI 4–9) in 2015/16, 14 t (95% CI 8–20) in 2013/14 and 11 t (95% CI 8–14) in 2011/12
- in the West Coast were steady at 56 t (95% CI 49–64 t) in 2017/18 compared with 65 t (95% CI 57–73) in 2015/16, but lower than 76 t (95% CI 67–85) in 2013/14 and 114 t (95% CI 101–126) in 2011/12
- in the South Coast were steady at 26 t (95% CI 17–35 t) in 2017/18 compared with 17 t (95% CI 13–21) in 2015/16, 25 t (95% CI 20–30) in 2013/14, but lower than 44 t (95% CI 37–52) in 2011/12

**Table 20.** Estimated annual catch (kept numbers), average weight and estimated harvest weight for the top 10 nearshore and estuarine scalefish species during 2017/18 by RBFL holders aged five years or older (values in bold indicate relative standard error >40%; values in italics indicate <30 diarists recorded catches of the species).

| Bioregion | Species | Estimated catch (kept by number) | Average weight (kg) | Source | Estimated harvest (tonnes) | Standard Error |
|---|---|---|---|---|---|---|
| North | Barramundi | 1,587 | 4.040 | C | 6.411 | 1.963 |
| North | Golden Trevally | 968 | 4.921 | C | 4.764 | 1.742 |
| North | Blue Threadfin | 1,404 | 2.690 | C | 3.777 | 0.858 |
| North | King Threadfin | 622 | 4.854 | C | 3.019 | 0.607 |
| North | Black Jewfish | *234* | 3.174 | C | 0.743 | 0.270 |
| North | Giant Trevally | 193 | 3.512 | C | 0.678 | 0.253 |
| North | Chinaman Rockcod | 395 | 0.704 | C | 0.278 | 0.070 |
| North | Western Yellowfin Bream | ***431*** | 0.528 | C | 0.228 | 0.122 |
| North | Javelinfish | ***231*** | 0.847 | C | 0.196 | 0.079 |
| North | Mullet | *1,112* | 0.153 | C | 0.170 | 0.057 |
| TOTAL | | 7,177 | | | 20.264 | 2.857 |
| Gascoyne | Chinaman Rockcod | 7,615 | 0.704 | C | 5.361 | 1.415 |
| Gascoyne | Golden Trevally | *417* | 4.921 | C | 2.052 | 0.718 |
| Gascoyne | Western Yellowfin Bream | ***1,694*** | 0.528 | C | 0.894 | 0.785 |
| Gascoyne | Giant Trevally | ***244*** | 3.512 | C | 0.857 | 0.544 |
| Gascoyne | Mulloway | *210* | 3.893 | C | 0.818 | 0.265 |
| Gascoyne | Silver Trevally | ***484*** | 0.885 | C | 0.428 | 0.240 |
| Gascoyne | School Whiting | *1,932* | 0.124 | C | 0.240 | 0.087 |
| Gascoyne | Garfish | ***1,254*** | 0.174 | C | 0.218 | 0.164 |
| Gascoyne | Mullet | ***1,356*** | 0.153 | C | 0.207 | 0.121 |
| Gascoyne | Western Butterfish | ***291*** | 0.440 | C | 0.128 | 0.121 |
| TOTAL | | 15,497 | | | 11.203 | 1.903 |
| West | School Whiting | 179,034 | 0.094 | B | 16.829 | 2.309 |
| West | Silver Trevally | 22,879 | 0.512 | B | 11.714 | 1.622 |
| West | Australian Herring | 82,746 | 0.132 | B | 10.922 | 1.320 |
| West | King George Whiting | 19,221 | 0.438 | B | 8.419 | 1.345 |
| West | Tailor | 5,084 | 0.407 | B | 2.069 | 0.552 |
| West | Southern Bluespotted Flathead | 2,899 | 0.543 | B | 1.574 | 0.413 |
| West | Mullet | ***10,156*** | 0.153 | C | 1.554 | 1.222 |
| West | Western King Wrasse | 5,154 | 0.276 | B | 1.423 | 0.288 |
| West | Brownspotted Wrasse | 3,493 | 0.381 | B | 1.331 | 0.421 |
| West | Western Butterfish | 3,596 | 0.151 | B | 0.543 | 0.178 |
| TOTAL | | 334,262 | | | 56.378 | 3.711 |
| South | King George Whiting | 23,018 | 0.688 | C | 15.836 | 4.183 |
| South | Black Bream | 4,137 | 0.549 | C | 2.271 | 0.684 |
| South | Australian Herring | 12,245 | 0.184 | C | 2.253 | 0.369 |
| South | Silver Trevally | 2,193 | 0.885 | C | 1.941 | 0.435 |
| South | School Whiting | **15,374** | 0.124 | C | 1.906 | 0.988 |
| South | Other Trevally | *520* | 1.084 | C | 0.564 | 0.214 |
| South | Southern Bluespotted Flathead | 793 | 0.595 | C | 0.472 | 0.131 |
| South | Blue Mackerel | ***540*** | 0.612 | C | 0.330 | 0.166 |
| South | Yellowtail Scad | ***780*** | 0.330 | C | 0.257 | 0.168 |
| South | Mullet | ***1,027*** | 0.153 | C | 0.157 | 0.104 |
| TOTAL | | 60,627 | | | 25.987 | 4.404 |

Average weights where: [B] is bioregion estimate from Appendix 1*, [C] unpublished Tour Operator Returns

Estimated recreational harvest ranges of nearshore and estuarine species (or species groupings) in 2017/18 compared with previous statewide surveys were steady for:

- Barramundi. Golden Trevally, Blue Threadfin, King Threadfin, Black Jewfish, Giant Trevally, Chinaman Rockcod and Mullet in the North Coast
- Chinaman Rockcod, Golden Trevally, Western Yellowfin Bream, Giant Trevally, Mulloway, Silver Trevally, School Whiting, Garfish, Mullet and Western Butterfish in the Gascoyne Coast
- School Whiting, Silver Trevally, Australian Herring, King George Whiting, Mullet, Western King Wrasse, Brownspotted Wrasse and Western Butterfish in the West Coast
- Black Bream, Australian Herring, Silver Trevally, School Whiting, Southern Bluespotted Flathead and Yellowtail Scad in the South Coast

Changes in the the estimated recreational harvest of individual species in the top 10 nearshore and estuarine species (or groupings) occurred for:

- Tailor in the West Coast with 2 t (95% CI 1–3) in 2017/18 was lower than 5 t (95% CI 3–7) in 2015/16, 5 t (95% CI 3–7) in 2013/14 and 14 t (95% CI 6–22) in 2011/12
- King George Whiting in the South Coast with 16 t (95% CI 8–24) in 2017/18 was higher than 3 t (95% CI 1–4) in 2015/16, but steady compared with 9 t (95% CI 5–13) in 2013/14 and 12 t (95% CI 8–17) in 2011/12

## 9.2 Demersal Resources

The Integrated Fisheries Management Plan for the West Coast Demersal Scalefish utilised estimates of recreational catch by weight from surveys conducted in 2005/06 (Department of Fisheries 2010). The estimated harvest weights for the West Coast Demersal Scalefish Fishery (Table 22) includes: the most commonly caught commercial and recreational species, demersal species where boat-based catches predominate, and species groupings for comparisons with the commercial catches. The 'Emperor' grouping includes 5 species: Bluespotted Emperor (*Lethrinus punctulatus*), Grass Emperor (*L. laticaudis*), Longnose Emperor (*L. olivaceus*), Redspot Emperor (*L. lentjan*), Redthroat Emperor (*L. miniatus*), Robinson's Seabream (*Gymnocranius grandoculis*), Spangled Emperor (*L. nebulosus*) and Yellowtail Emperor (*L. atkinsoni*). The 'Bight Redfish' grouping includes Bight Redfish (*Centroberyx gerrardi*), Swallowtail (*C. lineatus*) and Yelloweye Redfish (*C. australis*).

The top 10 demersal species (or species groupings, 15 in the West Coast) in 2017/18 represented: 79% of the total catch (kept by numbers) in the North Coast, 81% in the Gascoyne Coast, 90% in the West Coast and 99% in the South Coast (Table 25). Estimated recreational harvest ranges for the top demersal species in 2017/18 compared with estimates from previous statewide surveys indicated the estimated harvest range:

- in the North Coast were higher at 75 t (95% CI 63–88 t) in 2017/18 compared with 40 t (95% CI 34–46) in 2015/16, but steady with 55 t (95% CI 46–65) in 2013/14 and 78 t (95% CI 69–87) in 2011/12

- in the Gascoyne Coast were steady at 96 t (95% CI 82–110 t) in 2017/18 compared with 99 t (95% CI 85–114) in 2015/16, 98 t (95% CI 85–111) in 2013/14, but lower than 144 t (95% CI 125–160) in 2011/12
- in the West Coast were steady at 231 t (95% CI 210–253 t) in 2017/18 compared with 213 t (95% CI 194–231) in 2015/16, but higher than 154 t (95% CI 140–168) in 2013/14 and 160 t (95% CI 145–174) in 2011/12
- in the South Coast were higher at 68 t (95% CI 59–77 t) in 2017/18 compared with 45 t (95% CI 38–51) in 2015/16 and 33 t (95% CI 30–37) in 2013/14, but steady with 54 t (95% CI 46–63) in 2011/12

Estimated recreational harvest ranges of demersal species (or species groupings) in 2017/18 compared with previous statewide surveys were steady for:

- Grass Emperor, Blackspot Tuskfish, Blue Tuskfish, Spangled Emperor, Stripey Snapper and Mangrove Jack in the North Coast
- Pink Snapper, Spangled Emperor, Goldband Snapper, Rankin Cod, Red Emperor, Grass Emperor, Redthroat Emperor, Coral Trout, Baldchin Groper and Stripey Snapper in the Gascoyne Coast
- West Australian Dhufish, Pink Snapper, Baldchin Groper, Breaksea Cod, Emperor, Bass Groper, Blue Morwong, Hapuku, Bight Redfish, Sergeant Baker, Blue-Eye Trevalla, Foxfish, Eightbar Grouper and Sea Sweep in the West Coast
- Bight Redfish, Pink Snapper, Blue Morwong, Breaksea Cod, Sea Sweep, Harlequin Fish, Swallowtail and Sergeant Baker in the South Coast

Changes in the estimated recreational harvest of individual species in the top 10 demersal species (or groupings) occurred for:

- Coral Trout in the North Coast at 12 t (95% CI 9–16) in 2017/18 was higher 6 t (95% CI 4–7) in 2015/16, but steady with 7 t (95% CI 5–10) in 2013/14 and 11 t (95% CI 8–15) in 2011/12
- Rankin Cod in the North Coast at 15 t (95% CI 8–22) in 2017/18 was higher than 5 t (95% CI 3–7) in 2015/16, but steady with 6 t (95% CI 4–9) in 2013/14 and 8 t (95% CI 6–10) in 2011/12
- Red Emperor in the North Coast at 15 t (95% CI 9–21) in 2017/18 was higher than 6 t (95% CI 3–9) in 2015/16, but steady with 7 t (95% CI 4–10) in 2013/14 and 9 t (95% CI 7–12) in 2011/12
- West Australian Dhufish in the South Coast at 13 t (95% CI 9–17) in 2017/18 was higher than 6 t (95% CI 3–8) in 2015/16, 3 t (95% CI 1–4) in 2013/14 and 4 t (95% CI 1–8) in 2011/12

**Table 21.** Estimated annual catch (kept numbers), average weight and estimated harvest weight for the top 10 demersal scalefish species during 2017/18 by RBFL holders aged five years or older (excluding West Coast, refer to Table 22) (values in bold indicate relative standard error >40%; values in italics indicate <30 diarists recorded catches of the species).

| Bioregion | Species | Estimated catch (kept by number) | Average weight (kg) | Source | Estimated harvest (tonnes) | Standard Error |
|---|---|---|---|---|---|---|
| North | Rankin Cod | 3,663 | 4.124 | C | 15.106 | 3.625 |
| North | Red Emperor | 4,269 | 3.516 | C | 15.010 | 2.862 |
| North | Coral Trout | 4,654 | 2.636 | C | 12.268 | 1.748 |
| North | Grass Emperor | 5,772 | 1.287 | C | 7.429 | 1.737 |
| North | Saddletail Snapper | **3,472** | 2.031 | C | 7.052 | 3.325 |
| North | Blackspot Tuskfish | 2,157 | 2.903 | C | 6.262 | 1.541 |
| North | Blue Tuskfish | 1,289 | 3.255 | C | 4.196 | 1.243 |
| North | Spangled Emperor | 1,503 | 2.381 | C | 3.579 | 0.707 |
| North | Stripey Snapper | 3,542 | 0.862 | C | 3.053 | 0.638 |
| North | Mangrove Jack | 1,575 | 0.970 | C | 1.528 | 0.372 |
| TOTAL | | 31,896 | | | 75.483 | 6.590 |
| Gascoyne | Pink Snapper | 8,216 | 2.507 | C | 20.598 | 3.537 |
| Gascoyne | Spangled Emperor | 6,119 | 2.381 | C | 14.569 | 2.393 |
| Gascoyne | Goldband Snapper | 3,070 | 3.953 | C | 12.136 | 3.783 |
| Gascoyne | Rankin Cod | 2,772 | 4.124 | C | 11.432 | 2.124 |
| Gascoyne | Red Emperor | 3,113 | 3.516 | C | 10.945 | 2.299 |
| Gascoyne | Grass Emperor | 7,954 | 1.287 | C | 10.237 | 2.351 |
| Gascoyne | Redthroat Emperor | 5,526 | 1.134 | C | 6.266 | 1.378 |
| Gascoyne | Coral Trout | 1,802 | 2.636 | C | 4.750 | 0.894 |
| Gascoyne | Baldchin Groper | 1,278 | 3.098 | C | 3.959 | 0.960 |
| Gascoyne | Stripey Snapper | 1,530 | 0.862 | C | 1.319 | 0.284 |
| TOTAL | | 41,380 | | | 96.211 | 7.182 |
| South | Bight Redfish | 11,409 | 1.318 | C | 15.037 | 2.212 |
| South | West Australian Dhufish | 2,281 | 5.751 | C | 13.118 | 2.214 |
| South | Pink Snapper | 4,009 | 2.507 | C | 10.051 | 2.224 |
| South | Blue Morwong | 3,095 | 3.207 | C | 9.926 | 1.478 |
| South | Breaksea Cod | 6,521 | 1.274 | C | 8.308 | 1.079 |
| South | Hapuku | *395* | 9.876 | C | 3.901 | 1.560 |
| South | Sea Sweep | 1,959 | 1.262 | C | 2.472 | 0.524 |
| South | Harlequin Fish | 1,010 | 2.000 | C | 2.020 | 0.442 |
| South | Swallowtail | 2,364 | 0.749 | C | 1.771 | 0.324 |
| South | Sergeant Baker | **1,046** | 2.216 | C | 1.158 | 0.280 |
| TOTAL | | 34,089 | | | 67.762 | 4.597 |

Average weights where: [C] unpublished Tour Operator Returns

Trends in the estimated recreational harvests for the indicator species in the West Coast are as follows:

- West Australian Dhufish was steady at 123 t (95% CI 105–141) in 2017/18 compared with 113 t (95% CI 97–129) in 2015/16, and higher than 82 t (95% CI 69–94) in 2013/14 and 75 t (95% CI 64–87) in 2011/12
- Baldchin Groper was steady at 32 t (95% CI 26–38) in 2017/18 compared with 35 t (95% CI 28–42) in 2015/16, higher than 21 t (95% CI 17–25) in 2013/14 and steady with 30 t (95% CI 24–36) in 2011/12
- Pink Snapper was steady at 48 t (95% CI 40–55) in 2017/18 compared with 36 t (95% CI 30–42) in 2015/16, and higher than 30 t (95% CI 25–36) in 2013/14 and 32 t (95% CI 27–38) in 2011/12

**Table 22.** Estimated annual catch (kept numbers), average weight and estimated harvest weight for the dominant 15 species in the West Coast Demersal Scalefish Fishery during 2017/18 by RBFL holders aged five years or older (values in bold indicate relative standard error >40%; values in italics indicate <30 diarists recorded catches of the species).

| Bioregion | Species | Estimated catch (kept by number) | Average weight (kg) | Source | Estimated harvest (tonnes) | Standard Error |
|---|---|---|---|---|---|---|
| West | West Australian Dhufish | 25,627 | 4.810 | B | 123.266 | 9.129 |
| West | Pink Snapper | 17,618 | 2.716 | B | 47.850 | 3.900 |
| West | Baldchin Groper | 15,288 | 2.074 | B | 31.707 | 3.134 |
| West | Breaksea Cod | 9,128 | 0.969 | B | 8.845 | 0.867 |
| West | Emperor | 3,125 | 1.455 | C | 4.547 | 0.727 |
| West | Bass Groper | ***119*** | 30.791 | C | 3.664 | 2.186 |
| West | Blue Morwong | 1,240 | 2.648 | B | 3.284 | 0.853 |
| West | Hapuku | ***192*** | 9.876 | C | 1.896 | 1.116 |
| West | Bight Redfish | 1,003 | 1.476 | B | 1.480 | 0.285 |
| West | Sergeant Baker | 1,250 | 1.108 | C | 1.385 | 0.345 |
| West | Blue-Eye Trevalla | ***76*** | 14.970 | C | 1.138 | 0.659 |
| West | Foxfish | 1,201 | 0.780 | B | 0.937 | 0.186 |
| West | Eightbar Grouper | ***182*** | 4.635 | C | 0.844 | 0.705 |
| West | Sea Sweep | 520 | 1.261 | B | 0.656 | 0.178 |
| West | Ruby Snapper | N/A | | | | |
| TOTAL | | 76,569 | | | 231.499 | 10.845 |

Average weights where: [B] is bioregion estimate from Appendix 1*, [C] unpublished Tour Operator Returns, n/a is not available

## 9.3 Pelagic Resources

The statewide top 10 pelagic scalefish species (or species groupings) in 2017/18 represented 85% of the total resource catch (kept by numbers) (Table 25). The top 10 pelagic species (or species groupings) in 2017/18 were represented by Spanish Mackerel (31% of the total resource catch), Southern Bluefin Tuna (11%), Samsonfish (10%), Cobia (7%), Yellowtail Kingfish (7%), Other Mackerel & Tuna (5%), School Mackerel (4%), Yellowfin Tuna (4%), Mackerel Tuna (3%) and Grey Mackerel (3%).

The estimated recreational harvest range for the statewide top ten pelagic species (or groupings) was steady at 104 t (95% CI 87–121 t) in 2017/18 compared with 106 t (95% CI 93–118 t) in 2015/16, but lower than 143 t (95% CI 124–163) in 2013/14 and 174 t (95% CI 154–193) in 2011/12 (Table 25).

Estimated recreational harvest ranges of indicator pelagic species (or species groupings) are compared with estimates from previous statewide surveys (Table 23):

- Spanish Mackeral were steady at 48 t (95% CI 37–58) in 2017/18 compared with 44 t (95% CI 35–54) in 2015/16, but lower than 86 t (95% CI 69–103) in 2013/14 and 93 t (95% CI 78–108) in 2011/12
- Samsonfish were steady at 13 t (95% CI 10–17) in 2017/18 compared with 15 t (95% CI 11–19) in 2015/16, 22 t (95% CI 16–28) in 2013/14 and 18 t (95% CI 14–22) in 2011/12

**Table 23.** Estimated annual catch (kept numbers), average weight and estimated harvest weight for the top 10 statewide pelagic scalefish species during 2017/18 by RBFL holders aged five years or older (values in bold indicate relative standard error >40%; values in italics indicate <30 diarists recorded catches of the species).

| Bioregion | Species | Estimated catch (kept by number) | Average weight (kg) | Source | Estimated harvest (tonnes) | Standard Error |
|---|---|---|---|---|---|---|
| Statewide | Spanish Mackerel | 5,221 | 9.153 | C | 47.788 | 5.400 |
| Statewide | Samsonfish | 1,718 | 7.605 | C | 13.065 | 1.787 |
| Statewide | Cobia | 1,206 | 6.932 | C | 8.360 | 1.338 |
| Statewide | Southern Bluefin Tuna | 1,823 | 4.203 | C | 7.662 | 2.278 |
| Statewide | Other Mackerel & Tuna | ***793*** | 9.153 | C | 7.258 | 5.675 |
| Statewide | Yellowtail Kingfish | 1,102 | 6.478 | C | 7.139 | 1.658 |
| Statewide | Yellowfin Tuna | 606 | 10.008 | C | 6.065 | 1.291 |
| Statewide | Grey Mackerel | *530* | 5.518 | C | 2.925 | 0.982 |
| Statewide | Mackerel Tuna | 576 | 4.381 | C | 2.523 | 0.613 |
| Statewide | School Mackerel | 682 | 1.988 | C | 1.356 | 0.443 |
| TOTAL | | 14,257 | | | 104.141 | 8.803 |

Average weights where: [C] unpublished Tour Operator Returns

## 9.4 Crab Resources

Estimated recreational harvest ranges of crab resources in each bioregion are compared with estimates from previous statewide surveys (Table 25):

- Mud Crab in the North Coast (3,154, kept by number; Table 24) represents 92% of the estimated statewide catch (Table 4), catches for the Gascoyne Coast (Table 7) and West Coast (Table 8) had low sample sizes (< 30) and high rse (>40%)
- Mud Crab in the North Coast was steady at 2.5 t (95% CI 2–3) in 2017/18 compared with 2.5 t (95% CI 2–3) in 2015/16, but lower than 6.5 t (95% CI 5–8) in 2013/14 and 7 t (95% CI 5–9) in 2011/12
- Blue Swimmer Crab in the North Coast was steady at 1.5 t (95% CI 1–2) in 2017/18 compared with 2 t (95% CI 1–3) in 2015/16, 4 t (95% CI 2–6) in 2013/14 and 3 t (95% CI 2–5) in 2011/12
- Blue Swimmer Crab in the Gascoyne Coast was steady at 5 t (95% CI 1–10) in 2017/18 compared with 1 t (95% CI 1–2) in 2015/16, 2 t (95% CI 1–4) in 2013/14 and 4 t (95% CI 1–8) in 2011/12
- Blue Swimmer Crab in the West Coast was steady at 54 t (95% CI 45–63) in 2017/18 compared with 43 t (95% CI 36–50) in 2015/16 compared with 59 t (95% CI 50–68) in 2013/14, but lower than 87 t (95% CI 76–98) in 2011/12
- Blue Swimmer Crab in the South Coast was steady at <1 t (95% CI 0–0.14) in 2017/18 compared with 1 t (95% CI 0.2–1.2) in 2015/16, but lower than 2 t (95% CI 1–3) in 2013/14 and 3 t (95% CI 1–4) in 2011/12

**Table 24.** Estimated annual catch (kept numbers), average weight and estimated harvest weight for the crab resources during 2017/18 by RBFL holders aged five years or older (values in bold indicate relative standard error >40%; values in italics indicate <30 diarists recorded catches of the species).

| Bioregion | Species | Estimated catch (kept by number) | Average weight (kg) | Source | Estimated harvest (tonnes) | Standard Error |
|---|---|---|---|---|---|---|
| North | Giant Mud Crab | *1,230* | 1.09 | C | 1.341 | 0.391 |
| North | Orange Mud Crab | 1,924 | 0.607 | C | 1.168 | 0.271 |
| TOTAL | | 3154 | | | 2.509 | 0.476 |
| North | Blue Swimmer Crab | *6,522* | 0.240 | S | 1.565 | 0.476 |
| Gascoyne | Blue Swimmer Crab | **22,340** | 0.240 | S | 5.362 | 2.304 |
| West | Blue Swimmer Crab | 249,112 | 0.217 | B | 54.057 | 4.497 |
| South | Blue Swimmer Crab | ***326*** | | S | 0.078 | 0.036 |

Average weights where: [B] is bioregion estimate from Appendix 1*, [S] is statewide estimate from 2011/12 to 2015/16 (Ryan et al. 2017), [C] unpublished Tour Operator Returns

## 9.5 Summary

Estimates of harvest from boat-based recreational fishing presented in this chapter will be used alongside information provided in Commercial Logbooks and Tour Operator Returns to assess the status of fisheries resources. Estimates of harvest (Table 25) are important when a considerable portion of the total catch is attributable to the recreational sector, and therefore, estimates for these species are included in stock assessments and required for resource allocation.

**Table 25.** Information required for stock status reporting of major recreational fisheries based on estimates of boat-based recreational catch by RBFL holders aged five years or older (excluding charter-boat recreational fishing).

| Resource | Year | Number of species/ taxa | Proportion of total catch (kept by number) | Estimated harvest (kept by number) | Standard Error | Estimated harvest (tonnes) | Standard Error | Estimated harvest (tonnes, 95% CI) |
|---|---|---|---|---|---|---|---|---|
| **North Coast Bioregion** | | | | | | | | |
| North Coast Nearshore and Estuarine | 1112 | 10 | 80 | 13,100 | 1,725 | 18.749 | 3.187 | 13–25 |
| | 1314 | 10 | 77 | 12,143 | 1,546 | 13.856 | 1.965 | 10–18 |
| | 1516 | 10 | 83 | 9,631 | 1,354 | 21.404 | 3.221 | 15–28 |
| | 1718 | 10 | 87 | 7,177 | 838 | 20.264 | 2.857 | 15–26 |
| North Coast Demersal Scalefish | 1112 | 10 | 79 | 45,498 | 3,223 | 78.009 | 4.675 | 69–87 |
| | 1314 | 10 | 75 | 30,410 | 2,841 | 55.407 | 4.773 | 46–65 |
| | 1516 | 10 | 77 | 20,696 | 1,922 | 40.063 | 3.240 | 34–46 |
| | 1718 | 10 | 79 | 31,896 | 2,755 | 75.483 | 6.590 | 63–88 |
| North Coast Mud Crab | 1112 | 2 | 100 | 9,508 | 1,250 | 6.991 | 0.969 | 5–9 |
| | 1314 | 2 | 100 | 8,948 | 1,351 | 6.528 | 0.974 | 5–8 |
| | 1516 | 2 | 100 | 3,364 | 691 | 2.473 | 0.472 | 2–3 |
| | 1718 | 2 | 100 | 3,154 | 573 | 2.509 | 0.476 | 2–3 |
| North Coast Blue Swimmer Crab | 1112 | 1 | 100 | 14,802 | 3,974 | 3.390 | 0.910 | 2–5 |
| | 1314 | 1 | 100 | 15,938 | 3,983 | 4.048 | 1.012 | 2–6 |
| | 1516 | 1 | 100 | 7,044 | 1,900 | 1.691 | 0.456 | 1–3 |
| | 1718 | 1 | 100 | 6,522 | 1,984 | 1.565 | 0.476 | 1–2 |
| **Gascoyne Coast Bioregion** | | | | | | | | |
| Gascoyne Coast Nearshore and Estuarine | 1112 | 10 | 82 | 14,183 | 2,887 | 10.786 | 1.652 | 8–14 |
| | 1314 | 10 | 88 | 16,352 | 2,979 | 13.898 | 3.106 | 8–20 |
| | 1516 | 10 | 92 | 12,354 | 2,596 | 6.231 | 1.199 | 4–9 |
| | 1718 | 10 | 94 | 15,497 | 2,909 | 11.203 | 1.903 | 7–15 |
| Gascoyne Coast Demersal Scalefish | 1112 | 10 | 83 | 71,301 | 4,069 | 143.764 | 8.171 | 128–160 |
| | 1314 | 10 | 77 | 51,657 | 3,988 | 97.967 | 6.685 | 85–111 |
| | 1516 | 10 | 82 | 43,988 | 3,119 | 99.260 | 7.448 | 85–114 |
| | 1718 | 10 | 81 | 41,380 | 3,121 | 96.211 | 7.182 | 82–110 |
| Gascoyne Coast Blue Swimmer Crab | 1112 | 1 | 100 | 19,050 | 7,847 | 4.362 | 1.797 | 1–8 |
| | 1314 | 1 | 100 | 8,764 | 3,132 | 2.226 | 0.796 | 1–4 |
| | 1516 | 1 | 100 | 5,379 | 1,604 | 1.291 | 0.385 | 1–2 |
| | 1718 | 1 | 100 | 22,340 | 9,601 | 5.362 | 2.304 | 1–10 |

| Resource | Year | Number of species/ taxa | Proportion of total catch (kept by number) | Estimated harvest (kept by number) | Standard Error | Estimated harvest (tonnes) | Standard Error | Estimated harvest (tonnes, 95% CI) |
|---|---|---|---|---|---|---|---|---|
| **West Coast Bioregion** | | | | | | | | |
| West Coast Nearshore and Estuarine | 1112 | 10 | 93 | 612,888 | 34,279 | 113.574 | 6.469 | 101–126 |
| | 1314 | 10 | 95 | 452,234 | 33,996 | 75.798 | 4.577 | 67–85 |
| | 1516 | 10 | 94 | 333,640 | 29,176 | 65.120 | 4.130 | 57–73 |
| | 1718 | 10 | 95 | 334,262 | 28,158 | 56.378 | 3.711 | 49–64 |
| West Coast Demersal Scalefish | 1112 | 13 | 89 | 61,795 | 2,418 | 159.640 | 7.259 | 145–174 |
| | 1314 | 14 | 87 | 59,625 | 2,414 | 154.006 | 7.321 | 140–168 |
| | 1516 | 15 | 93 | 71,524 | 2,815 | 212.641 | 9.617 | 194–231 |
| | 1718 | 14 | 90 | 76,569 | 3,059 | 231.499 | 10.845 | 210–253 |
| West Coast Blue Swimmer Crab | 1112 | 1 | 100 | 380,816 | 24,846 | 87.207 | 5.690 | 76–98 |
| | 1314 | 1 | 100 | 254,373 | 19,745 | 58.760 | 4.561 | 50–68 |
| | 1516 | 1 | 100 | 181,709 | 14,925 | 42.883 | 3.522 | 36–50 |
| | 1718 | 1 | 100 | 249,112 | 20,723 | 54.057 | 4.497 | 45–63 |
| **South Coast Bioregion** | | | | | | | | |
| South Coast Nearshore and Estuarine | 1112 | 10 | 95 | 152,040 | 14,929 | 44.094 | 3.830 | 37–52 |
| | 1314 | 10 | 95 | 119,008 | 13,946 | 25.205 | 2.586 | 20–30 |
| | 1516 | 10 | 95 | 65,729 | 7,730 | 16.915 | 2.065 | 13–21 |
| | 1718 | 10 | 95 | 60,627 | 10,348 | 25.987 | 4.404 | 17–35 |
| South Coast Demersal Scalefish | 1112 | 10 | 97 | 35,423 | 2,527 | 54.420 | 4.323 | 46–63 |
| | 1314 | 10 | 98 | 24,174 | 1,506 | 33.485 | 2.031 | 30–37 |
| | 1516 | 10 | 96 | 29,015 | 2,283 | 44.652 | 3.383 | 38–51 |
| | 1718 | 10 | 99 | 34,089 | 2,268 | 67.762 | 4.597 | 59–77 |
| South Coast Blue Swimmer Crab | 1112 | 1 | 100 | 12,164 | 3,145 | 2.786 | 0.720 | 1–4 |
| | 1314 | 1 | 100 | 8,640 | 2,015 | 2.195 | 0.512 | 1–3 |
| | 1516 | 1 | 100 | 2,918 | 1,157 | 0.700 | 0.277 | 0.2–1.2 |
| | 1718 | 1 | 100 | 326 | 148 | 0.078 | 0.032 | 0–0.14 |
| **Statewide** | | | | | | | | |
| Statewide Pelagic | 1112 | 10 | 83 | 24,937 | 1,687 | 173.524 | 10.035 | 154–193 |
| | 1314 | 10 | 86 | 21,587 | 1,605 | 143.272 | 10.063 | 124–163 |
| | 1516 | 10 | 86 | 15,619 | 1,022 | 105.705 | 6.463 | 93–118 |
| | 1718 | 10 | 85 | 14,257 | 1,141 | 104.141 | 8.803 | 87–121 |

# 10 Summary and Future Research

## 10.1 Overview

Participation, effort and catch from boat-based recreational fishing have been estimated from statewide surveys in 2011/12, 2013/14, 2015/16 and 2017/18. Although recreational fishing in Western Australia is conducted from boats and the shore across a range of marine and freshwater habitats, boat-based recreational fishing was estimated to account for 43% of recreational fishing effort and 46% of the recreational harvest in 2000/01, with both boat- and shore-based recreational fishing occurring almost entirely in marine waters (Henry and Lyle 2003).

Approximately 136,000 recreational fishers purchased a Recreational Boat Fishing Licence (RBFL) in 2016/17 and 2017/18 with half of these fishers residing in the Perth metropolitan area. Trends in participation (by recall for the previous 12-months) by residence, age, gender, avidity and bioregion fished varied but overall were consistent across the Screening and Benchmark Surveys from 2011 to 2018. The spatial coverage of the resident population influences the distribution of boat-based recreational fishing effort. Consequently, boat-based recreational fishing effort in 2017/18 was highest in the West Coast (76%) with the remainder in the North Coast (8%), Gascoyne Coast (10%) and South Coast (6%).

At a statewide level, most boat-based recreational fishing effort occurred in coastal nearshore (57%), inshore demersal (27%) and estuary habitats (11%), and the remainder in pelagic (2%), offshore demersal (2%) and freshwater (1%). Shore-based recreational fishing was not included in this report; therefore, recreational fishing effort would be under-estimated for nearshore, estuary and freshwater habitats. However, patterns in boat-based recreational fishing effort in this report were consistent with previous statewide surveys, including the National Recreational Fishing Survey in 2000/01, where most boat-based recreational fishing effort occurred in coastal waters (from the shoreline to 5km; 66%), followed by estuarine (19%), then offshore (>5km from the coast; 11%) (Henry and Lyle 2003).

Recreational fishers use a variety of fishing methods. At a statewide level, most boat-based recreational fishing effort was line fishing (61%), followed by potting (33%), diving (4%) and nets (1%). In 2000/01, line fishing accounted for 77% of recreational fishing effort, followed by potting methods (16%) (Henry and Lyle 2003). Distinct seasonal patterns of boat-based recreational fishing effort occur in autumn and winter, which are the most active seasons in the North Coast and Gascoyne Coast, and summer and autumn, the most active seasons in the West Coast and South Coast.

Estimates of effort from boat-based recreational fishing in Western Australia were generally consistent across the four statewide surveys, as were trends in effort by habitat, method and month. The estimated effort in the North Coast, Gascoyne Coast and South Coast in 2017/18 was similar with 2015/16, furthermore the decrease in effort that was observed in these bioregions in 2015/16, compared with 2013/14 and 2011/12, continued in 2017/18. However, the estimated effort in the West Coast was higher in 2017/18 compared with 2015/16, 2013/14 and 2011/12.

Estimates of effort from boat-based recreational fishing by bioregion were broadly consistent across the four statewide surveys. Effort by habitat, method and month for each bioregion were also generally consistent across the four statewide surveys. Notable exceptions for lower effort in 2017/18 occurred: in the North Coast (for line fishing, in nearshore and estuary habitats, from April to August 2018); in the Gascoyne Coast (for line fishing, in inshore habitat, from April to August 2018); and in the South Coast (for line fishing, in nearshore habitats, from October to November 2017 and March to April 2018). Estimated boat-based recreational fishing effort in the West Coast was higher in 2017/18 for potting, in nearshore habitat, and from November and December 2017.

At a statewide level, estimates of catch from boat-based recreational fishing were generally consistent across the four statewide surveys. At a bioregion level, comparisons can be made for both the species contributing to the top 10 species in each resource and the estimated harvest for each resource.

The top 10 nearshore and estuarine species (or species groupings) in 2017/18 represented: 87% of the total catch (kept by numbers) in the North Coast, 94% in the Gascoyne Coast, 95% in the West Coast and 95% in the South Coast. The estimated recreational harvest ranges for the top 10 nearshore and estuarine species: in the North Coast were steady at 20 t (95% CI 15–26 t) in 2017/18 compared with 21 t (95% CI 15–28) in 2015/16, 14 t (95% CI 10–18) in 2013/14 and 19 t (95% CI 13–25) in 2011/12; in the Gascoyne Coast were steady at 11 t (95% CI 7–15 t) in 2017/18 compared with 6 t (95% CI 4–9) in 2015/16, 14 t (95% CI 8–20) in 2013/14 and 11 t (95% CI 8–14) in 2011/12; in the West Coast were steady at 56 t (95% CI 49–64 t) in 2017/18 compared with 65 t (95% CI 57–73) in 2015/16, but lower than 76 t (95% CI 67–85) in 2013/14 and 114 t (95% CI 101–126) in 2011/12; and in the South Coast were steady at 26 t (95% CI 17–35 t) in 2017/18 compared with 17 t (95% CI 13–21) in 2015/16, 25 t (95% CI 20–30) in 2013/14, but lower than 44 t (95% CI 37–52) in 2011/12.

The estimated recreational harvest range for the top 10 demersal species (or groupings) in the North Coast were higher at 75 t (95% CI 63–88 t) in 2017/18 compared with 40 t (95% CI 34–46 t) in 2015/16, but steady with 55 t (95% CI 46–65) in 2013/14 and 78 t (95% CI 69–87) in 2011/12. This decrease was consistent with steady estimates of effort by boat-based recreational fishers in the North Coast in 2017/18 compared with 2015/16. Estimated recreational harvests in 2017/18 were higher for: Coral Trout (9–16 95% CI) compared with 2015/16 (4–7), but steady with 2013/14 (5–10) and 2011/12 (8–15); Rankin Cod (8–22) compared with 2015/16 (3–7), but steady with 2013/14 (4–9) and 2011/12 (6–10); and Red Emperor (9–21) compared with 2015/16 (3–9), but steady with 2013/14 (4–10) and 2011/12 (7–12). Estimated recreational harvests were steady for Grass Emperor, Blackspot Tuskfish, Blue Tuskfish, Spangled Emperor, Stripey Snapper and Mangrove Jack.

The estimated recreational harvest range for the top 10 demersal species (or groupings) in the Gascoyne Coast were steady at 96 t (95% CI 82–110) in 2017/18 compared with 99 t (95% CI 85–114) in 2015/16, 98 t (95% CI 85–111) in 2013/14, but lower 144 t (95% CI 125–160) in 2011/12. Estimated recreational harvests were steady for Pink Snapper, Spangled Emperor, Goldband Snapper, Rankin Cod, Red Emperor, Grass Emperor, Redthroat Emperor, Coral Trout, Baldchin Groper and Stripey Snapper in the Gascoyne Coast.

The estimated recreational harvest range for the top 15 demersal species (or groupings) in the West Coast were steady at 231 t (95% CI 210–253) in 2017/18 compared with 213 t (95% CI 194–231) in 2015/16, but higher than 154 t (95% CI 140–168) in 2013/14 and 160 t (95% CI 145–174) in 2011/12. The estimated recreational harvest range of West Australian Dhufish was steady in 2017/18 (105–141) compared with 2015/16 (97–129), and higher than 2013/14 (69–94) and 2011/12 (64–87). The estimated recreational harvest range of Baldchin Groper was steady in 2017/18 (26–38) compared with 2015/16 (28–42), and higher than 2013/14 (17–25) and 2011/12 (24–36). The estimated recreational harvest range of Pink Snapper was steady in 2017/18 (40–55) compared with 2015/16 (30–42), and higher than 2013/14 (25–36) and 2011/12 (27–38). Estimated recreational harvests were also steady for Breaksea Cod, Emperor, Bass Groper, Blue Morwong, Hapuku, Bight Redfish, Sergeant Baker, Blue-Eye Trevalla, Foxfish, Eightbar Grouper and Sea Sweep in the West Coast.

The estimated recreational harvest range for the top 10 demersal species (or groupings) in the South Coast were higher at 68 t (95% CI 59–77) in 2017/18 compared with 45 t (95% CI 38–51) in 2015/16, 33 t (95% CI 30–37) in 2013/14 and 54 t (95% CI 46–63) in 2011/12. Estimated recreational harvests in 2017/18 were higher for West Australian Dhufish (9–17 95% CI) compared with 2015/16 (3–8), 2013/14 (1–4) and 2011/12 (1–8). Estimated recreational harvests were steady for Bight Redfish, Pink Snapper, Blue Morwong, Breaksea Cod, Sea Sweep, Harlequin Fish, Swallowtail and Sergeant Baker in the South Coast.

The estimated recreational harvest of Mud Crab in the North Coast represented 92% of the statewide total catch (kept by numbers) in 2017/18. The estimated recreational harvest range of Mud Crab in the North Coast was steady at 2.5 t (95% CI 2–3) in 2017/18 compared with 2.5 t (95% CI 2–3) in 2015/16, but lower than 6.5 t (95% CI 5–8) in 2013/14 and 7 t (95% CI 5–9) in 2011/12. The estimated recreational harvest of Blue Swimmer Crab in the West Coast represented 90 % of the statewide total catch (kept by numbers) in 2017/18. The estimated recreational harvest range for Blue Swimmer Crab in the West Coast was steady at 54 t (95% CI 45–63) in 2017/18 compared with 43 t (95% CI 36–50) in 2015/16 and 59 t (95% CI 50–68) in 2013/14, but lower than 87 t (95% CI 76–98) in 2011/12.

The statewide top 10 pelagic scalefish species (or species groupings) in 2017/18 represented 85% of the total resource catch (kept by numbers). The estimated recreational harvest range for the top 10 pelagic species was steady at 104 t (95% CI 87–121 t) in 2017/18 compared with 106 t (95% CI 93–118 t) in 2015/16, but lower than 143 t (95% CI 124–163) in 2013/14 and 174 t (95% CI 154–193) in 2011/12. The estimated recreational harvest range of Spanish Mackeral was steady in 2017/18 (37–58) compared with 2015/16 (35–54), and lower than 2013/14 (69–103) and 2011/12 (78–108). The estimated recreational harvest range of Samsonfish was steady in 2017/18 (10–17) compared with 2015/16 (11–19), 2013/14 (16–28) and 2011/12 (14–22).

Changes in the magnitude of estimates over time only provide an indication of the number kept and/or released from recreational fishing between surveys and does not provide an indication of the drivers of changes in the resource abundance. Effort and catches reported from recreational fishers varies in accordance with the nature of the fishery (from both biological and human dimensions), spatial and temporal scales of the resource and fishing activity, and

how these collectively respond to management actions. For example, access to the resource can vary over time through fish availability, legal size and bag limits, fisher mobility or fishing technology. Comparing estimates of catch from recreational fishing has similar constraints to those required for evaluating changes in commercial catch where differences can result from changes in both fish abundance and catchability. Catchability can vary with changes in fish behaviour and movement patterns, which vary by species, age and environmental factors, or changes in fishing practices, such as changes in targeted effort, time spent fishing and distance travelled to fishing location. Comparing estimates of catch from recreational fishing also requires consideration of release rates and the potential for change in fisher behaviour (e.g. species or targeting substitution).

Most importantly, evaluating time series of estimates of catch from recreational fishing requires consideration of the uncertainty associated with estimates. For the statewide surveys, the desired outcome was to achieve estimates for indicator species at statewide and bioregion levels with a precision suitable for stock assessments and developing management policies. It should not be expected that similar precision will be achieved for less common species, or any species at small spatial scales, although the survey design and sample size have allowed this to occur for some species. For example, the sample size and relative standard error achieved for indicator species in the Mid West, Metropolitan and South West zones have provided representative and precise estimates for spatial assessment of the West Coast Demersal Scalefish Resource.

While this report compares estimates from four statewide surveys of boat-based recreational fishing, additional catches from charter-boat recreational fishing (reported in Tour Operator Returns) are used to determine the total catch from the recreational sector. Specific performance indicators, reference levels and catch tolerances will be reported separately, and these will be used to provide trends in total catch to assist in developing, monitoring and refining management arrangements.

## 10.2 Fine-scale Estimates

It was anticipated that highest precision would be achieved for key species at annual and statewide levels, however, estimates with lower precision may be available at finer scale temporal (monthly) and spatial (zone within bioregions) levels.

The precision achieved for any estimate is generally dependent on the sample size and the level of variability in the data. Consequently, low accuracy and precision can occur for species caught rarely or infrequently from recreational fishing, or when disaggregating data to smaller spatial and temporal scales. The ability to improve precision in these situations depends on the ability to increase the sample size. Therefore, there is a recognised trade-off between survey costs and precision, which often requires balancing the need for desired precision with the available funding before commencing surveys.

## 10.3 Validation of Estimates from On-Site Surveys

Estimates of effort and catch from boat-based recreational fishing from the four statewide surveys are being compared with previous recreational fishing surveys to determine if there

have been changes in the catch composition and harvest, and whether current management arrangements are appropriate. The results of these analyses will be published separately.

Additional components of the statewide surveys, the Boat Ramp and Remote Camera Surveys (to be reported separately) have provided biological data to assist in converting catch (by number) to harvest (by weight) and comparison of estimates of boat-based recreational fishing effort from the Phone-Diary Survey (fishers only) against launch and retrieval counts from the Remote Cameras (fishers and non-fishers). Additional information on the proportion of boat launches with fishers and non-fishers will allow direct comparison of boat-based recreational fishing effort and potentially an ongoing measure of fishing activity between statewide surveys.

## 10.4 Improving Accuracy and Precision of Estimates

Recreational fishers are numerous, diverse and diffuse. They use numerous access points and platforms for fishing, including boats launched from harbours, marinas, beaches and private docks. Their divergent nature ranges from avid to infrequent fishers and different survey methods will encounter avid and infrequent fishers in different relative proportions. This means there is no single survey method that can be used to accurately and precisely estimate effort and catch from all recreational fisheries. Consequently, all surveys of recreational fishing have customised designs, which reflect the specific objectives of the survey, the spatial and temporal scope to be covered, the nature of the recreational fishery, and the constraints on resources available to conduct the survey.

A Research Partnership between the Department and Edith Cowan University has provided opportunities for postgraduate research to explore integration of spatial and temporal data obtained from recreational fishing surveys. To date, appropriate statistical and modelling methods have been explored to integrate the uncertainty associated with estimates of catch at different spatial and temporal scales (Aidoo *et al.* 2015; 2016). This research will assist in determining whether data from the statewide surveys can provide information at the resolution required for management of recreational fisheries at small spatial and temporal scales.

The Recreational Boat Fishing Licence (RBFL) was implemented in 2010 and uptake of licences numbers increased to 249,020 in 2017/18, then declined to 223,299 in 2018/19. Understanding any consequences that may occur due to changes in annual patterns of RBFL usage is critical when considering survey design and analysis, including behavioural adjustments of fishers. It is likely that some survey components will need to be modified to address any bias, and in some cases, it may be necessary to apply emerging techniques in survey design to further improve the accuracy and precision of estimates. This could include adjustment of weighting factors to account for avidity bias and non-intending fishing, subsequently estimates (and their uncertainty) may be revised on this basis.

As patterns in recreational fishing can change, the survey design needs to be flexible enough to accommodate these changes. A critical element of the Research Partnership is utilising expertise across several related disciplines (experimental design, survey sampling, data mining, spatial and temporal statistics) to allow further development and implementation of changes to the surveys if warranted. The Research Partnership with Edith Cowan University will also have a focus on developing human capital in fields directly relevant to statewide surveys.

The Department will continue to work proactively to ascertain whether additional information could be collected to better understand the human dimensions of recreational fishing and improve the accuracy and precision associated with estimates of effort and catch from recreational fishing to continue to provide the best available information for sustainable management of fishery resources.

# 11 Acknowledgements

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# Appendix: Estimates of average weight of key species from Boat Ramp Surveys in the West Coast Bioregion in 17/18.

Av wt is the average weight (measured in grams); n is the number of weight measurements recorded; se is standard error

| Reporting Group | Common Name | Species Name | n | Av Wt | se |
|---|---|---|---|---|---|
| Abalone | Greenlip Abalone | *Haliotis laevigata* | 28 | 511 | 17 |
| | Roe's Abalone | *Haliotis roei* | 6 | 68 | 4 |
| Cephalopods | Cuttlefish | *Sepia* spp. | 2 | 5498 | 900 |
| | Octopuses | Octopodidae - undifferentiated | 1 | 354 | |
| Lobster | Western Rock Lobster | *Panulirus cygnus* | 1634 | 588 | 8 |
| Crab | Blue Swimmer Crab | *Portunus armatus* | 794 | 217 | 3 |
| Sharks | Gummy Shark | *Mustelus antarcticus* | 8 | 3083 | 609 |
| | Bronze Whaler | *Carcharhinus brachyurus* | 4 | 8040 | 1761 |
| | Dusky Whaler | *Carcharhinus obscurus* | 1 | 4364 | |
| | Whiskery Shark | *Furgaleus macki* | 1 | 6476 | |
| | Blacktip Shark | *Carcharhinus, Loxodon & Rhizoprionodon* spp. | 1 | 6272 | |
| | Whaler & Weasel Sharks | Carcharhinidae - undifferentiated | 2 | 3392 | 915 |
| | Wobbegong | Orectolobidae - undifferentiated | 3 | 5783 | 2915 |
| Rays | Southern Fiddler Ray | *Trygonorrhina dumerilii* | 1 | 1367 | |
| Boarfish | Longsnout Boarfish | *Pentaceropsis recurvirostris* | 1 | 967 | |
| Bream | Pink Snapper | *Chrysophrys auratus* | 173 | 2716 | 126 |
| | Tarwhine | *Rhabdosargus sarba* | 24 | 359 | 40 |
| Bullseye | Rough Bullseye | *Pempheris klunzingeri* | 1 | 62 | |
| Cod | Breaksea Cod | *Epinephelides armatus* | 211 | 969 | 26 |
| | Chinaman Rockcod | *Epinephelus rivulatus* | 15 | 535 | 72 |
| | Goldspotted Rockcod | *Epinephelus coioides* | 4 | 3799 | 97 |
| | Harlequin Fish | *Othos dentex* | 26 | 1329 | 106 |
| | Tomato Rockcod | *Cephalopholis sonnerati* | 1 | 1976 | |
| Coral Trout | Barcheek Coral Trout | *Plectropomus maculatus* | 9 | 2246 | 324 |
| | Common Coral Trout | *Plectropomus leopardus* | 14 | 2015 | 150 |
| Damselfish | Mcculloch's Scalyfin | *Parma mccullochi* | 2 | 549 | 35 |
| | Scalyfin | *Parma victoriae* | 1 | 478 | |
| | Damselfishes | Pomacentridae - undifferentiated | 2 | 322 | 96 |
| Dottyback | Lined Dottyback | *Labracinus lineatus* | 1 | 146 | |
| Drummer | Silver Drummer | *Kyphosus sydneyanus* | 7 | 1857 | 608 |
| | Western Buffalo Bream | *Kyphosus cornelii* | 3 | 2514 | 329 |
| | Western Rock Blackfish | *Girella tephraeops* | 1 | 503 | |
| Emperor | Redthroat Emperor | *Lethrinus miniatus* | 32 | 1153 | 77 |
| | Spangled Emperor | *Lethrinus nebulosus* | 7 | 2204 | 157 |
| Flathead | Longhead Flathead | *Leviprora inops* | 1 | 1244 | |
| | Longspine Flathead | *Platycephalus longispinis* | 4 | 189 | 16 |
| | Northern Sand Flathead | *Platycephalus endrachtensis* | 1 | 196 | |
| | Southern Bluespotted Flathead | *Platycephalus speculator* | 35 | 543 | 57 |
| | Yellowtail Flathead | *Platycephalus westraliae* | 4 | 506 | 315 |
| | Flatheads | Platycephalidae - undifferentiated | 1 | 287 | |
| Flounder | Smalltooth Flounder | *Pseudorhombus jenynsii* | 6 | 329 | 69 |
| | Flounders | Bothidae, Psettodidae & Pleuronectidae - undifferentiated | 1 | 202 | |
| Garfish | Southern Garfish | *Hyporhamphus melanochir* | 29 | 93 | 6 |
| | Three-By-Two Garfish | *Hemiramphus robustus* | 2 | 194 | 34 |
| | Garfishes | Hemiramphidae - undifferentiated | 1 | 175 | |

| Reporting Group | Common Name | Species Name | n | Av Wt | se |
|---|---|---|---|---|---|
| Goatfish | Blacksaddle Goatfish | *Parupeneus spilurus* | 3 | 671 | 150 |
| | Bluespotted Goatfish | *Upeneichthys vlamingii* | 10 | 490 | 114 |
| | Goatfishes | Mullidae - undifferentiated | 1 | 444 | |
| Grunter | Sea Trumpeter | *Pelsartia humeralis* | 3 | 187 | 34 |
| | Western Striped Grunter | *Pelates octolineatus* | 14 | 148 | 11 |
| Grunter Bream | Goldspotted Sweetlips | *Plectorhinchus flavomaculatus* | 11 | 1229 | 83 |
| | Painted Sweetlips | *Diagramma labiosum* | 5 | 2176 | 447 |
| Gurnard | Bighead Gurnard Perch | *Neosebastes pandus* | 1 | 878 | |
| | Searobins & Armour Gurnards | Triglidae & Peristediidae - undifferentiated | 1 | 1136 | |
| Jewfish | Mulloway | *Argyrosomus japonicus* | 6 | 8252 | 947 |
| Leatherjacket | Black Reef Leatherjacket | *Eubalichthys bucephalus* | 1 | 253 | |
| | Bluelined Leatherjacket | *Meuschenia galii* | 5 | 333 | 20 |
| | Bluetail Leatherjacket | *Eubalichthys cyanoura* | 1 | 855 | |
| | Horseshoe Leatherjacket | *Meuschenia hippocrepis* | 2 | 844 | 6 |
| | Sixspine Leatherjacket | *Meuschenia freycineti* | 4 | 839 | 148 |
| Mackerel | Bigeye Tuna | *Thunnus obesus* | 2 | 6251 | 2664 |
| | Blue Mackerel | *Scomber australasicus* | 10 | 345 | 52 |
| | Frigate Mackerel | *Auxis thazard* | 1 | 755 | |
| | Spanish Mackerel | *Scomberomorus commerson* | 5 | 11739 | 1336 |
| Mahi Mahi | Mahi Mahis | *Coryphaena* spp. | 11 | 3053 | 488 |
| Moonfish & Batfish | Western Pomfred | *Schuettea woodwardi* | 1 | 105 | |
| Morwong | Blue Morwong | *Nemadactylus valenciennesi* | 11 | 2648 | 185 |
| | Dusky Morwong | *Dactylophora nigricans* | 3 | 6608 | 685 |
| | Redlip Morwong | *Cheilodactylus rubrolabiatus* | 3 | 1130 | 110 |
| Mullet | Sea Mullet | *Mugil cephalus* | 2 | 946 | 4 |
| Pearl Perch | West Australian Dhufish | *Glaucosoma hebraicum* | 451 | 4810 | 139 |
| Pigfish | Western Pigfish | *Bodianus vulpinus* | 2 | 753 | 187 |
| Pike | Longfin Pike | *Dinolestes lewini* | 1 | 0 | |
| | Snook | *Sphyraena novaehollandiae* | 12 | 649 | 120 |
| | Yellowtail Barracuda | *Sphyraena obtusata* | 13 | 1105 | 214 |
| Redfish | Bight Redfish | *Centroberyx gerrardi* | 21 | 1476 | 104 |
| | Swallowtail | *Centroberyx lineatus* | 2 | 334 | 51 |
| Salmon & Herring | Australian Herring | *Arripis georgianus* | 821 | 132 | 1 |
| | Western Australian Salmon | *Arripis truttaceus* | 73 | 4632 | 77 |
| Sand Bass | Sand Bass | *Psammoperca waigiensis* | 7 | 557 | 70 |
| Sergeant Baker | Sergeant Baker | *Latropiscis purpurissatus* | 10 | 616 | 85 |
| Snappers (Tropical) | Red Emperor | *Lutjanus sebae* | 1 | 3697 | |
| Stonefish | Western Red Scorpionfish | *Scorpaena sumptuosa* | 5 | 627 | 124 |
| Striped Grunter | Striped Grunters | Terapontidae - undifferentiated | 7 | 77 | 9 |
| Sweep | Banded Sweep | *Scorpis georgiana* | 5 | 606 | 73 |
| | Footballer Sweep | *Neatypus obliquus* | 1 | 258 | |
| | Moonlighter | *Tilodon sexfasciatus* | 4 | 1018 | 91 |
| | Sea Sweep | *Scorpis aequipinnis* | 32 | 1261 | 61 |
| Tailor | Tailor | *Pomatomus saltatrix* | 37 | 407 | 49 |
| Threadfin Bream | Western Butterfish | *Pentapodus vitta* | 146 | 151 | 5 |
| Trevalla | Blue-Eye Trevalla | *Hyperoglyphe antarctica* | 1 | 11221 | |
| Trevally | Samsonfish | *Seriola hippos* | 13 | 8092 | 1137 |
| | Silver Trevally | *Pseudocaranx georgianus* spp. complex | 330 | 512 | 20 |
| | Skipjack Trevally | *Pseudocaranx wrighti* | 2 | 412 | 95 |
| | Yellowtail Kingfish | *Seriola lalandi* | 16 | 3629 | 311 |
| | Yellowtail Scad | *Trachurus novaezelandiae* | 14 | 81 | 6 |
| Tuna | Skipjack Tuna | *Katsuwonus pelamis* | 3 | 5563 | 278 |
| | Southern Bluefin Tuna | *Thunnus maccoyii* | 22 | 3246 | 156 |

| Reporting Group | Common Name | Species Name | n | Av Wt | se |
|---|---|---|---|---|---|
| | Yellowfin Tuna | *Thunnus albacares* | 1 | 13597 | |
| Tuskfish & Wrasse | Baldchin Groper | *Choerodon rubescens* | 254 | 2074 | 57 |
| | Brownspotted Wrasse | *Notolabrus parilus* | 131 | 381 | 14 |
| | Foxfish | *Bodianus frenchii* | 45 | 780 | 33 |
| | Southern Maori Wrasse | *Ophthalmolepis lineolatus* | 7 | 156 | 35 |
| | Western Blue Groper | *Achoerodus gouldii* | 2 | 5015 | 239 |
| | Western King Wrasse | *Coris auricularis* | 138 | 276 | 11 |
| Whiting | King George Whiting | *Sillaginodes punctatus* | 175 | 438 | 24 |
| | Southern School Whiting | *Sillago bassensis* | 1150 | 94 | 1 |
| | Western School Whiting | *Sillago vittata* | 123 | 83 | 5 |
| | Western Trumpeter Whiting | *Sillago burrus* | 7 | 192 | 60 |
| | Yellowfin Whiting | *Sillago schomburgkii* | 2 | 97 | 7 |
| | Whitings | Sillaginidae - undifferentiated | 7 | 97 | 22 |
| Wirrah | Western Wirrah | *Acanthistius serratus* | 2 | 750 | 24 |
| Southern Blue Devil | Southern Blue Devil | *Paraplesiops meleagris* | 2 | 396 | 40 |
| Small Baitfish | Australian Sardine | *Sardinops sagax* | 1 | 52 | |
| | Common Hardyhead | *Atherinomorus vaigiensis* | 18 | 7 | 0 |
| | Silverbelly | *Parequula melbournensis* | 1 | 44 | |